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Institut
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Sepuluh Nopember

TESIS - MM. 2403

ANALISIS PENERAPAN JARINGAN LINTAS ANGKUTAN BARANG DI PROPINSI JAWA TIMUR (STUDI KASUS : EX KARISIDENAN BOJONEGORO)

RAMBANG SUKARNO

NALISIS PENERAPAN JARINGAN LINTAS ANGKUTAN BARANG DI PROPINSI JAWA TIMUR (STUDI KASUS : EX KARISIDENAN BOJONEGORO)

Tesis disusun untuk memenuhi salah satu syarat memperoleh gelar
Magister Manajemen Teknologi (M.MT)
di
Institut Teknologi Sepuluh Nopember Surabaya

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KATA PENGANTAR

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Dengan memanjatkan puji syukur kehadirat Tuhan Yang Maha Esa, atas segala Rahmat dan Karunia – Nya, sehingga penulis dapat menyelesaikan penelitian dan penulisan Proposal Tesis Analisis Penerapan Jaringan Lintas Angkutan Barang di Propinsi Jawa Timur (Studi Kasus Kabupaten Bojonegoro, Tuban, dan Lamongan) ini dapat terselesaikan tepat pada waktunya.

Tesis ini berisikan antara lain definisi dan konsep jaringan lintas angkutan barang, pergerakan angkutan barang, jenis muatan angkutan barang, volume angkutan barang, daerah bangkitan angkutan barang, kelas jalan, dan ruas – ruas jalan yang dilalui angkutan barang di Propinsi Jawa Timur.

Pada kesempatan ini kami mengucapkan terima kasih kepada semua pihak yang membantu dalam memberikan masukan sehingga tesis ini dapat terwujud dengan baik. Oleh sebab itu pada kesempatan ini penulis ingin menyampaikan ucapan terima kasih yang sebesar – besarnya kepada :

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Kami menyadari bahwa tak ada gading yang tak retak, maka dengan rendah hati kami juga menyadari bahwa dalam penyusunan tesis ini masih terdapat berbagai kekurangan, untuk itu segala sumbang saran dan kritik yang membangun sangat kami harapkan guna perbaikan di masa mendatang.

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Penulis

BAMBANG SUKARNO

ABSTRAK

ANALISIS PENERAPAN JARINGAN LINTAS ANGKUTAN BARANG DI PROPINSI JAWA TIMUR (STUDI KASUS : EX KARISIDENAN BOJONEGORO)

ABSTRAK

Oleh	: BAMBANG SUKARNO
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Wilayah Kabupaten Bojonegoro, Tuban dan Lamongan yang berada di pantai utara Jawa Timur, merupakan daerah yang sedang berkembang sehingga kebutuhan transportasi masyarakatnya juga sangat berkembang. Hal ini ditandai dengan perkembangan perekonomian di daerah tersebut dan timbulnya sentra – sentra ekonomi baru yang pada akhirnya juga membutuhkan pelayanan angkutan barang yang memadai. Seiring dengan perkembangan ekonomi di daerah tersebut guna lebih memudahkan pengaturan dan pengawasan, serta guna lebih menjamin pelayanan angkutan barang, maka dipandang perlu untuk dilakukan analisis penerapan jaringan lintas angkutan barang di daerah tersebut sebagaimana amanat peraturan perundangan yang berlaku. Dimana pada saat ini belum pernah dilakukan analisis penerapan jaringan lintas angkutan barang di Propinsi Jawa Timur.

Langkah – langkah yang dilakukan dalam analisa studi ini adalah melakukan pendataan kondisi saat ini baik primer yang meliputi kegiatan survey lokasi potensi angkutan barang, pergerakan angkutan barang dan rute angkutan barang serta kondisi prasarana jalan maupun pendataan sekunder yang meliputi kegiatan studi pustaka peraturan perundangan, potensi daerah (RTRW), data jaringan kelas jalan serta data pertumbuhan PDRB Propinsi dan Kabupaten, guna dijadikan bahan pertimbangan dalam penetapan jaringan lintas angkutan barang.

Berdasarkan hasil analisa dan pembahasan potensi total bangkitan dan tarikan perjalanan di wilayah studi di prakirakan pada tahun 2010 mencapai 2.590 perjalanan kendaraan /hari, dengan asal perjalanan tertinggi adalah Surabaya sebanyak 810 perjalanan kendaraan / hari, dan tarikan perjalanan sebesar 723 perjalanan kendaraan/hari. Dengan mempertimbangkan kebutuhan angkutan, kelas jalan, tingkat keselamatan angkutan, tingkat pelayanan jalan, tersedianya terminal

ABSTRACT

THE ANALYSIS OF GOODS TRANSPORTATION NETWORK APPLICATION IN EAST JAVA (A CASE STUDY OF EX-KARISIDENAN BOJONEGORO)

ABSTRACT

: BAMBANG SUKARNO
umber : 9101206613
elor : Ir. HITAPRIYA SUPRAYITNO, M.Eng

The regency of Bojonegoro, Tuban and Lamongan that located in the north of East Java is developing areas, in which the need of their transportation demand evelops. It is marked by the development of economic in those areas and the of new centrals economic, which at last demanded an approriate of goods rtation service. Consistent with the economic development in those areas and to te the regulation and supervision, and also to guarantee the service of goods rtation, it is need to make analysis of goods transportation network application in reas according to the prevailing law. In addition, this analisys is never done in East Java.

The steps to be performed in this analysis study is to make data of the condition, imary – to make survey of goods transportation potencial location, the move of ransportation, and the route of goods transportation, and the condition of roads, condary – doing library study about the law regulation, the potency of region V), the network data of road class and the data of PDRB growth of Province and cy, as a consideration in stipulating the goods transportation network.

Based on the result of analysis and discussion, the potency of total growth and f trips in these study regencies, it is predicted that on the year 2010 it will reach rips/day, with the highest trip is Surabaya that achieved 810 trips/day, and the f trip is 723 trip/day. By considering the demand of transportation, road class, the of transportation safety, the level of road service, the available of goods rtation terminal, RTRW, and environment eternality, it is recommended that the tion of goods transportation network on the road section of National and Province

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PENDAHULUAN

BAB I

PENDAHULUAN

1.1. Latar Belakang

Transportasi mempunyai peranan penting sebagai urat nadi pembangunan yang merupakan kebutuhan pokok dalam mendukung proses pembangunan di segala sektor. Transportasi berperan penting dalam mengangkut orang dan barang yang merupakan obyek pembangunan. Adanya transportasi menimbulkan timbulnya proses perpindahan orang dan atau barang dari satu tempat ke tempat lain yang akan dapat menambah nilai ekonomisnya.

Wilayah Kabupaten Bojonegoro, Tuban dan Lamongan yang berada di pantai utara Jawa Timur, merupakan daerah yang sedang berkembang sehingga kebutuhan transportasi masyarakatnya juga sangat berkembang. Hal ini ditandai dengan perkembangan perekonomian di daerah tersebut dan timbulnya sentra – sentra ekonomi baru yang pada akhirnya juga membutuhkan pelayanan angkutan barang yang memadai.

Seiring dengan perkembangan ekonomi didaerah tersebut dan

1.2. Perumusan Masalah

Analisis jaringan lintas angkutan barang belum pernah dilakukan. Untuk melakukan analisis tersebut perlu mengetahui hal – hal berikut ini :

- OD Truk per kendaraan / ton.
- Jaringan kelas jalan yang ada.
- Jaringan kelas jalan sesuai OD dan prediksi yang dialalui truk angkutan barang.

1.3. Tujuan dan Manfaat Penelitian

Tujuan yang ingin dicapai dalam penelitian guna penyusunan tesis ini adalah :

1. Untuk mengetahui potensi bangkitan dan tarikan angkutan barang.
2. Untuk mengetahui kondisi prasarana jalan yang ada.
3. Untuk penetapan jaringan kelas jalan.

Sedangkan manfaat dari penelitian guna penyusunan tesis ini adalah : sebagai dasar pertimbangan dalam pembuatan keputusan penetapan jaringan

1.4. Batasan dan Ruang Lingkup

Penulisan ini dibatasi pada penyusunan jaringan lintas angkutan barang di wilayah Kabupaten Bojonegoro, Tuban dan Lamongan dengan lingkup kegiatan :

1. Survey lokasi potensi angkutan barang, pergerakan angkutan barang, rute angkutan barang dan kondisi prasarana jalan.
2. Evaluasi, analisis dan upaya penerapan jaringan lintas angkutan barang.

1.5. Sistematika Penulisan

Sistematika penulisan yang digunakan dalam penelitian ini, guna memudahkan pemahaman dapat diuraikan sebagai berikut :

I. Pendahuluan, yang berisi latar belakang, perumusan masalah, tujuan dan maksud penelitian, batasan dan ruang lingkup, dan sistematika penulisan.

II. Tinjauan Pustaka, berisi tentang kajian pustaka tentang jalan, konsep pengertian, pengelompokan sistem jaringan jalan dan jaringan transportasi jalan, pengelompokan jalan menurut peranan, .pengelompokan jalan menurut wewenang pembinaan, jaringan lintas, kelas jalan, tingkat pelayanan jalan, model analisis bangkitan dan tarikan,

IV. Analisa dan Pembahasan Masalah, yang berisikan kondisi angkutan barang di wilayah Kabupaten Bojonegoro, Tuban dan Lamongan saat ini, jaringan jalan yang ada, kelas jalan yang ada, bangkitan perjalanan angkutan barang pada saat ini, distribusi perjalanan angkutan barang, pemilihan moda angkutan barang, pemilihan rute angkutan barang, upaya penerapan jaringan lintas angkutan barang.

V. Kesimpulan dan Saran, berisikan kesimpulan dari penelitian dan saran – saran yang direkomendasikan.

VI. Daftar Pustaka.

BAB II

TINJAUAN PUSTAKA

BAB II

TINJAUAN PUSTAKA

2.1. Jalan

2.1.1. Konsep Pengertian

Jalan sebagai salah satu prasarana perhubungan hakekatnya merupakan unsur penting dalam pembangunan suatu daerah.

Jalan mempunyai peranan penting dalam bidang ekonomi, politik, sosial budaya, dan pertahanan keamanan serta dipergunakan sebesar – besarnya untuk kemakmuran rakyat. Jalan mempunyai peranan untuk mendorong pengembangan semua satuan wilayah pengembangan, dalam usah mencapai tingkat perkembangan antar daerah yang semakin merata. Jalan merupakan suatu kesatuan sistem jaringan jalan yang mengikat dan menghubungkan pusat – pusat pertumbuhan dengan wilayah yang berada dalam pengaruh pelayanannya dalam suatu hubungan hirarkhi (UU No 13 tahun 1980 tentang Jalan Pasal 2).

Definisi jalan adalah jalan yang diperuntukkan bagi lalu lintas umum.

Transportasi jalan diselenggarakan dengan tujuan untuk mewujudkan lalu lintas dan angkutan jalan dengan selamat, aman, cepat, lancar, tertib dan teratur, nyaman dan efisien, mampu memadukan moda transportasi lainnya, menjangkau seluruh pelosok wilayah daratan, untuk menunjang pemerataan, pertumbuhan dan stabilitas, sebagai pendorong, penggerak dan penunjang pembangunan nasional dengan biaya yang terjangkau oleh daya beli masyarakat (UU No 14 Tahun 1992 tentang Lalu Lintas dan Angkutan Jalan Pasal 3).

2.1.1. Pengelompokan Sistem Jaringan Jalan dan Jaringan Transportasi Jalan

Pengelompokan sistem jaringan jalan berdasarkan (UU No 13 tahun 1980 tentang Jalan Pasal 3), antara lain :

a. Sistem jaringan jalan primer, yakni sistem jaringan jalan dengan peranan pelayanan jasa distribusi untuk pengembangan semua wilayah di tingkat nasional dengan semua simpul jasa distribusi yang kemudian berwujud kota.
b. Sistem jaringan jalan sekunder, yakni sistem jaringan jalan dengan peranan pelayanan jasa distribusi untuk masyarakat di dalam kota.

b. Jaringan transportasi jalan sekunder, yakni jaringan transportasi jalan untuk keperluan penyelenggaraan lalu lintas dan angkutan jalan lokal baik di wilayah perkotaan maupun pedesaan yang terpadu baik intra maupun antar moda.

2.1.2. Pengelompokan Jalan Menurut Peranan

Pengelompokan jalan menurut peranan berdasarkan (UU No 13 tahun 1980 tentang Jalan Pasal 4), antara lain :

a. Jalan Arteri, yakni jalan yang melayani angkutan utama dengan ciri – ciri perjalanan jarak jauh, kecepatan rata – rata tinggi, dan jumlah jalan masuk dibatasi secara effisien.
b. Jalan Kolektor, yakni jalan yang melayani angkutan pengumpulan / pembagian dengan ciri – ciri perjalanan jarak sedang, kecepatan rata – rata sedang, dan jumlah jalan masuk dibatasi.
c. Jalan Lokal, yakni jalan yang melayani angkutan setempat dengan ciri – ciri perjalanan jarak dekat, kecepatan rata – rata rendah, dan jumlah jalan masuk tidak dibatasi.

b. Jalan Propinsi, yakni jalan umum yang pembinaannya dilakukan oleh Pemerintah Propinsi.

c. Jalan Kabupaten / Kota, yakni jalan umum yang pembinaannya dilakukan oleh Pemerintah Kabupaten / Kota.

d. Jalan Khusus, yakni jalan yang pembinaannya dilakukan oleh instansi, badan hukum, perorangan yang bersangkutan.

2.2. Jaringan Lintas

Definisi jaringan lintas angkutan barang pada Peraturan Pemerintah Nomor 43 tahun 1993 tentang Prasarana dan Lalu Lintas Jalan adalah merupakan kumpulan dari lintas – lintas yang menjadi satu kesatuan jaringan pelayanan angkutan barang. Jaringan lintas ditetapkan dengan memperhatikan :

a. Kebutuhan angkutan,

b. Kelas jalan yang sama / lebih tinggi,

c. Tingkat keselamatan angkutan,

d. Tingkat pelayanan jalan,

3. Kelas Jalan

Untuk keperluan pengaturan penggunaan dan pemenuhan kebutuhan angkutan, jalan dibagi dalam beberapa kelas [1]). Pembagian jalan dalam beberapa kelas, didasarkan pada kebutuhan transportasi, pemilihan moda secra tepat dengan mempertimbangkan keunggulan masing – masing moda, perkembangan teknologi kendaraan bermotor, muatan sumbu terberat kendaraan bermotor serta konstruksi jalan.

Pengelompokan jalan dalam beberapa kelas berdasarkan kriteria sebagai berikut :

a. Jalan Kelas I, yaitu jalan arteri yang dapat dilalui kendaraan bermotor termasuk muatan dengan ukuran lebar tidak melebihi 2.500 milimeter, ukuran panjang tidak melebihi 18.000 milimeter, dan muatan sumbu terberat yang diizinkan lebih besar dari 10 Ton.
b. Jalan Kelas II, yaitu jalan arteri yang dapat dilalui kendaraan bermotor termasuk muatan dengan ukuran lebar tidak melebihi 2.500 milimeter, ukuran panjang tidak melebihi 18.000 milimeter, dan muatan sumbu

d. Jalan Kelas IIIb, yaitu jalan kolektor yang dapat dilalui kendaraan bermotor termasuk muatan dengan ukuran lebar tidak melebihi 2.500 milimeter, ukuran panjang tidak melebihi 12.000 milimeter, dan muatan sumbu terberat yang diizinkan 8 Ton.

e. Jalan Kelas IIIc, yaitu jalan lokal yang dapat dilalui kendaraan bermotor termasuk muatan dengan ukuran lebar tidak melebihi 2.100 milimeter, ukuran panjang tidak melebihi 9.000 milimeter, dan muatan sumbu terberat yang diizinkan 8 Ton.

2.4. Tingkat Pelayanan Jalan

Dalam menetapkan jaringan lintas angkutan barang, juga harus memperhatikan tingkat pelayanan jalan. Untuk menentukan tingkat pelayanan jalan dapat diuraikan dalam tabel 2.1. sebagai berikut :

Tabel 2.1. Karakteristik tingkat pelayanan jalan.

Tingkat Pelayanan	Karakteristik lalu lintas	Batas lingkup V/C
A	Kondisi arus bebas dengan kecepatan tinggi, pengemudi dapat memilih kecepatan yang diinginkan tanpa hambatan.	0,00 – 0,20
B	Arus stabil, tetapi kecepatan operasi mulai dibatasi oleh kondisi lalu lintas. Pengemudi memiliki kebebasan yang cukup untuk memilih kecepatan.	0,20 – 0,44

2.5. Model Analisis

2.5.1. Model Bangkitan dan Tarikan

Dalam melakukan analisis bangkitan dan tarikan perjalanan angkutan barang alternatif model yang digunakan sebagai berikut :

a. Model Faktor Pertumbuhan, yaitu digunakan untuk memprediksi bangkitan yang akan datang.

   Rumusan yang digunakan :

   Bi atau Ti = F X Bi atau Ti

   Dimana : Bi = bangkitan sekarang, Ti = Tarikan sekarang.

   F = faktor pertumbuhan.

b. Model Multiple Regressi Linear, yaitu digunakan untuk memprediksi bangkitan yang akan datang. Analisis regresi linier berganda dengan banyak variabel dengan rumus persamaan [2] sebagai berikut :

   $$Y = a + b1X1 + b2X2 \ .$$

   Dimana :

   Y = Jumlah perjalanan angkutan barang (Variabel tidak bebas)
   a = Konstanta
   b1,b2,b3 = Koefisien regresi

Tarikan Barang : *Dd kom = 3,9548 X1 + 780,87 X2 – 6.238.614,26*

Dengan nilai $R^2 = 0,6348$

Bangkitan Barang : *Oi kom = 4,0526 X1 + 7902,21 – 6.368.438,37*

dengan nilai $R^2 = 0,6343$.

Dimana :

X1 = Jumlah Penduduk
X2 = PDRB

c. Model Klasifikasi Silang atau Analisis Katagori,

yaitu bangkitan dan tarikan di hitung berdasarkan tiap katagori dengan rumus persamaan sebagai berikut :

Pi = Tc Hc (i)

Dimana :

Pi	=	Jumlah perjalanan angkutan barang di zona i.
Tc	=	Tarikan / bangkitan berdasar katagori c di zona i..
Hc	=	Jumlah lokasi bangkitan / tarikan di zona i..

2.5.2. Model Distribusi

Dalam melakukan analisis distribusi angkutan barang model yang digunakan adalah dengan membuat matrik OD / Matrik asal tujuan.

Dalam hal ini notasi **T*id*** menyatakan besarnya pergerakan angkutan barang yang bergerak dari zona asal ***i*** ke zona tujuan ***d*** selama periode waktu tertentu.

Tabel 2.2. Bentuk umum matrik asal dan tujuan.

Tujuan / Zona Asal	1	2	3	.....	N	O*i*
1	T11	T12	T13	....	T11	O1
2	T21	T22	T23	....	T21	O2
3	T31	T32	T33	....	T31	O3
.....	.....	.....	.....	....	.....	.....
N	TN1	TN2	TN3	....	TN1	ON
D*d*	D1	D1	D1	....	D1	T

Jika digunakan untuk proyeksi di masa mendatang, maka ada beberapa alternatif model yang digunakan, yakni :

a. Model Pertumbuhan seragam.

b. Model Rata – rata.

c. Model Fratar.

d. Model Detroit.

e. Model Furness.

2.5.3. Model Pemilihan Rute

Model pemilihan rute digunakan untuk menganalisis kemungkinan populasi / sampel untuk memilih. Contoh dari model pemilihan rute ini antara lain :

a. Model all – or – nothing.
b. Model Burrell,
c. Model Sakarovitch,
d. Model Stokastik – proporsional
e. Model Capacity Restraint.
f. Model JICA
g. Model Keseimbangan, dll.

Berdasarkan hasil survei, di lokasi studi yakni Kabupaten Bojonegoro, Tuban dan Lamongan kurang tersedia alternatif rute lain bagi angkutan barang, maka pemilihan rute yang digunakan adalah sesuai kondisi saat ini dengan jaringan jalan yang amat terbatas.

BAB III

METODOLOGI PENELITIAN

BAB III

METODOLOGI PENELITIAN

3.1. Penetapan Jaringan Lintas

Jaringan lintas angkutan barang ditetapkan dengan memperhatikan beberapa hal :

a. Kebutuhan angkutan,

b. Kelas jalan yang sama / lebih tinggi,

c. Tingkat keselamatan angkutan,

d. Tingkat pelayanan jalan,

e. Tersedianya terminal angkutan barang,

f. Rencana Umum Tata Ruang,

g. Kelestarian lingkungan.

Prinsip dasar inilah yang menjadi acuan dalam menetapkan jaringan lintas angkutan barang pada wilayah Kabupaten Bojonegoro, Tuban dan

dan efisien, sehingga dapat menjadi pendorong dan penggerak pembangunan di daerah.

3.2. Data

Untuk menunjang penelitian ini data sekunder yang diperlukan, diperoleh dari instansi terkait, antara lain :

a. Data time series (5 tahun) lokasi dan jumlah bangkitan angkutan barang.
b. Data Rencana Tata Ruang Daerah.
c. Data kondisi geometrik dan daya dukung jalan pada jaringan jalan yang ada.
d. Data Kelas jalan pada jaringan jalan yang ada.
e. dll.

Data Primer yang diperlukan untuk menunjang penelitian ini, diperoleh dari hasil survei, antara lain :

a. Data OD / pergerakan angkutan barang.
b. Data Jenis Muatan.
c. Data kendaraan yang digunakan.

3.3. Metode Pengumpulan Data

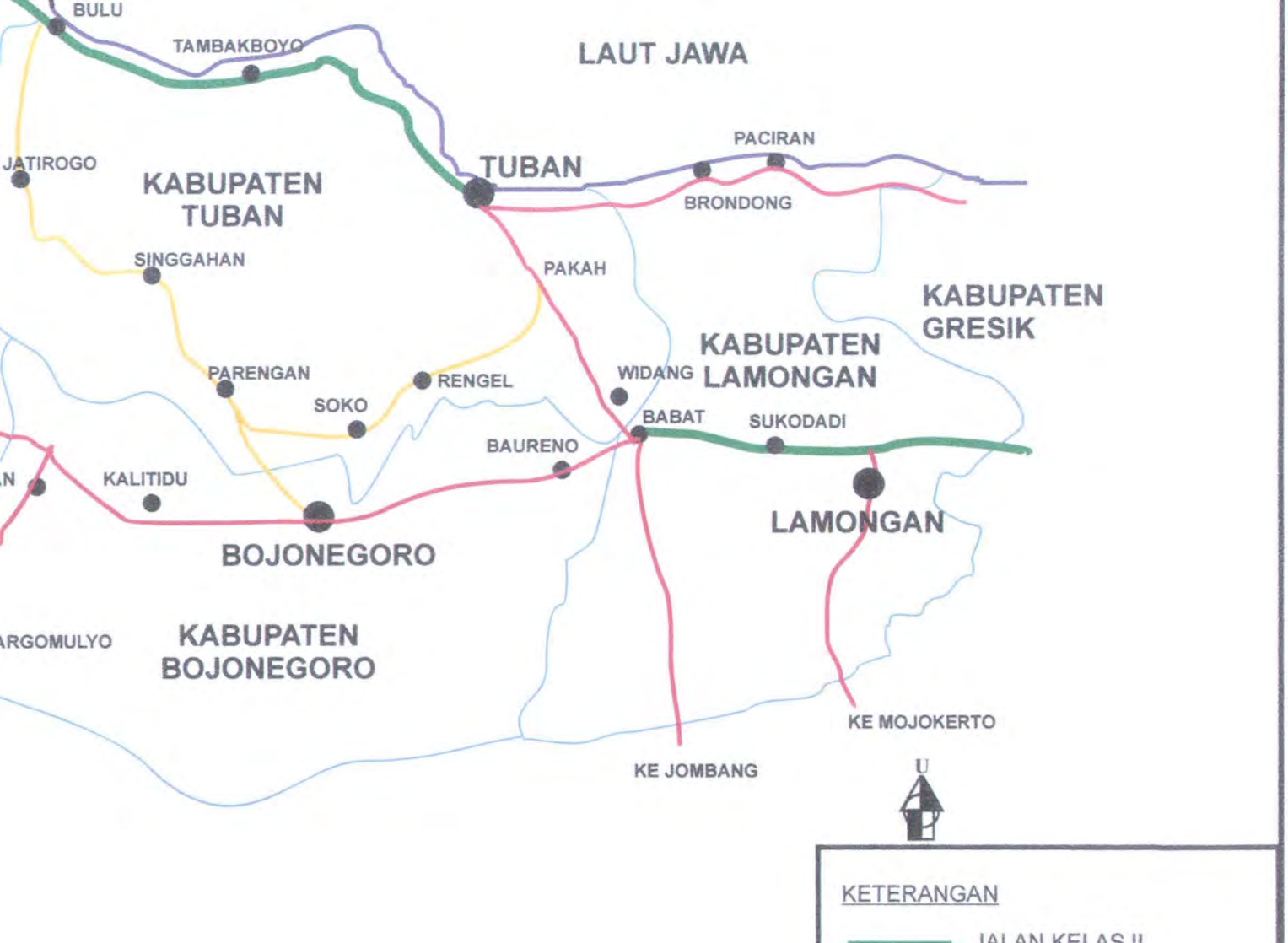
Metode pengumpulan data yang digunakan dalam mengumpulkan data sekunder adalah dengan mendatangi instansi terkait yang memiliki data tersebut, sedangkan untuk data primer adalah dengan melakukan survei langsung di lapangan dan mencatat seluruh data yang ada sesuai dengan kebutuhan data.

3.4. Metode Analisis Data

Metode analisis data yang digunakan oleh penulis dalam penyusunan Thesis ini adalah sebagai berikut :

a. Menentukan lokasi bangkitan angkutan barang saat ini dan dimasa mendatang, sesuai dengan kondisi saat ini dan saat mendatang berdasar rencana tata ruang, yakni dengan mengamati rencana tata ruang di wilayah Ex Karisidenan Bojonegoro (Gambar 3.1) yang meliputi : Kabupaten Bojonegoro, Kabupaten Tuban, dan Kabupaten Lamongan.

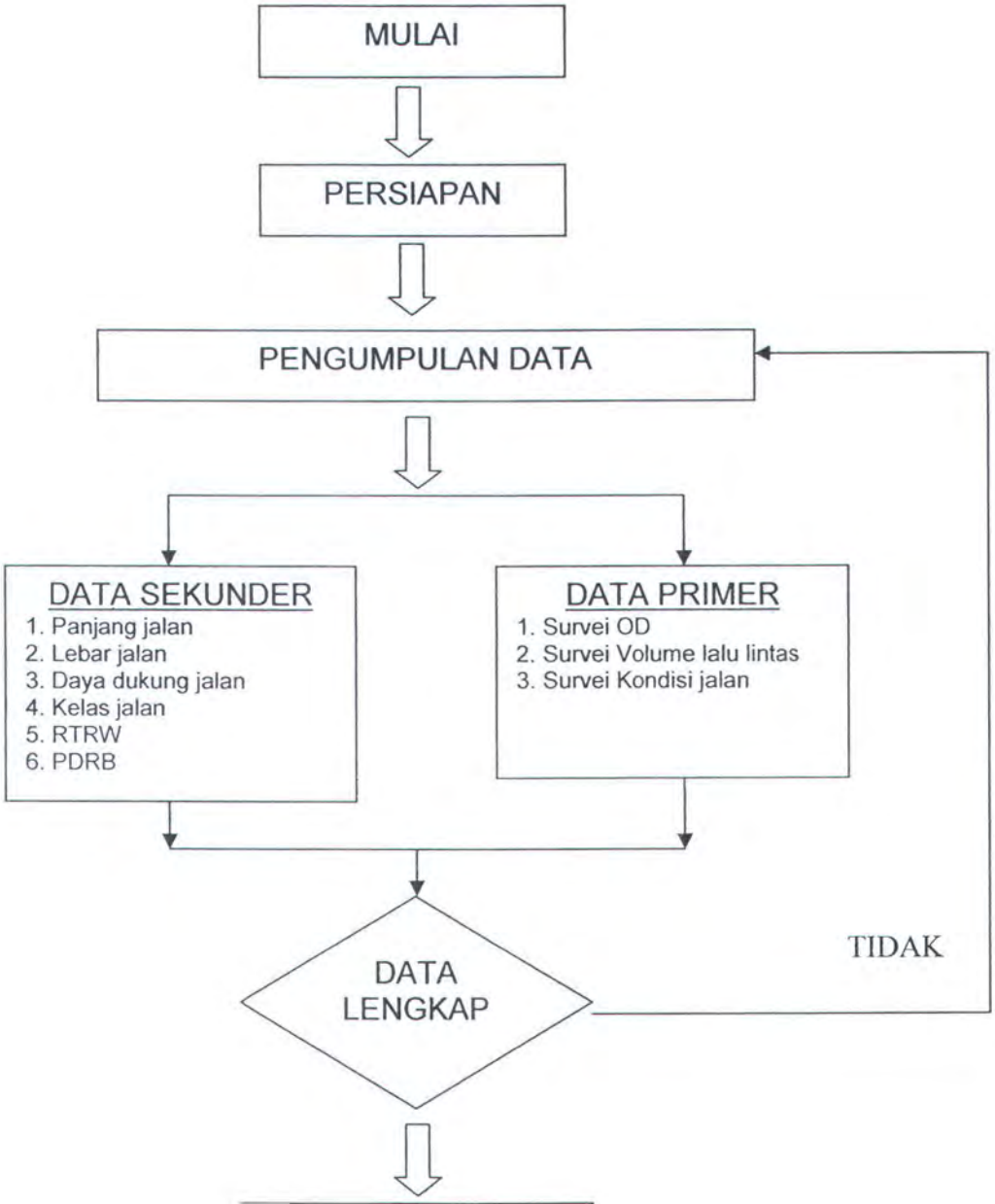
b. Mengkaji jaringan jalan yang dilalui angkutan barang terkait dengan daya


BULU
TAMBAKBOYO
LAUT JAWA
PACIRAN
JATIROGO
KABUPATEN TUBAN
TUBAN
BRONDONG
SINGGAHAN
PAKAH
KABUPATEN GRESIK
KABUPATEN LAMONGAN
PARENGAN
RENGEL
WIDANG
SOKO
BABAT
SUKODADI
BAURENO
KALITIDU
LAMONGAN
BOJONEGORO
ARGOMULYO
KABUPATEN BOJONEGORO
KE MOJOKERTO
KE JOMBANG
U
KETERANGAN

d. Melakukan pengkajian distribusi angkutan barang, yakni untuk mengetahui pola pergerakan angkutan barang dalam suatu sistem transportasi yang bergerak dari zona asal ke zona tujuan di dalam daerah tertentu dan selama periode waktu tertentu. Metode yang digunakan adalah dengan menggunakan Matrik OD (Origin – Destination) atau AT (Asal – Tujuan). Untuk memperoleh data tersebut maka dilakukan metode survei wawancara asal tujuan (OD) kepada para pengemudi angkutan barang, baik di tepi jalan maupun di lokasi bangkitan angkutan barang.

e. Menetapkan usulan jaringan lintas angkutan barang, dengan berdasarkan hasil analisis yang telah dilakukan maka ditentukan lintas angkutan barang yang sesuai.

3.5 Kerangka Pikir



BAB IV

ANALISA DATA DAN PEMBAHASAN

BAB IV

ANALISA DAN PEMBAHASAN MASALAH

4.1. Kondisi Umum

Dengan kondisi geografis berada di sebelah utara propinsi Jawa Timur (Pantura), wilayah Kabupaten Bojonegoro, Tuban dan Lamongan memiliki peranan yang amat penting dalam mendukung pembangunan di Jawa Timur, terutama terkait dengan mobilitas orang dan barang. Hal ini dapat dilihat secara nyata pergerakan orang dan barang antar kota dalam propinsi maupun antar kota antar propinsi melalui jalan darat banyak melalui rute ini. Dengan demikian daerah ini merupakan daerah yang sangat potensial untuk berkembang di masa mendatang.

Dalam rangka kebijaksanaan perwilayahan Propinsi Jawa Timur, wilayah Kabupaten Bojonegoro, Tuban dan Lamongan berada pada pengembangan SWP (Satuan Wilayah Pengembangan) dengan pusat pengembangan di Kota Tuban.

Terkait dengan rencana sistem kota – kota (Perkotaan) di Jawa Timur karakteristik dan pengembangan daerah ini adalah sebagai berikut :

a. Rencana pembentukan Orde Kota ke II,

c. Jumlah penduduk di wilayah Ex Karisidenan Bojonegoro :

Tabel 4.1. Jumlah Penduduk Wilayah Studi

Kota	Tahun				
	1997	1998	1999	2000	2001
Bojonegoro	1.167.628	1.170.917	1.176.016	1.183.660	1.191.39
Tuban	1.000.111	1.006.751	1.015.732	1.021.920	1.027.48
Lamongan	1.185.437	1.188.866	1.193.644	1.193.644	1.210.57

Sumber : BPS Jawa Timur Dalam Angka 2002

d. Pendapatan Domestik Regional Bruto :

Tabel 4.2. Pendapatan Domestik Regional Bruto di Wilayah Studi

Kabupaten/Kota	1998	1999	2000
1	2	3	4
16 Mojokerto	1.216,13	1.231,55	1.266,
21 Ngawi	665,28	672,13	682,
22 Bojonegoro	978,76	979,06	1.005,
23 Tuban	1.085,19	1.168,12	1.198,
24 Lamongan	1.071,11	1.093,81	1.118,
78 Surabaya	10.879,90	11.732,14	13.254,
Jawa Timur	54.398,90	55.058,97	56.856,
Jawa Tengah	17.608,00	18.223,00	18.938,

Sumber : BPS Propinsi Jawa Timur dan Jawa Tengah

- Pusat pendidikan SWP
- Pusat jasa SWP.

f. Kegiatan fungsi dasar yang dikembangkan :
   - Prasarana dan sarana perhubungan darat,
   - Prasarana dan sarana perhubungan laut,
   - Pasar induk regional SWP,
   - Kawasan Industri berat,
   - Kawasan Pendidikan regional SWP.

Untuk menunjang kebijaksanaan di Satuan Wilayah Pengembangan (SWP), kebijaksanaan spatial Kabupaten Tuban membagi menjadi 5 (lima) Sub Satuan Wilayah Pengembangan (SSWP) yang penerapannya didasarkan atas kesamaan ciri kondisi fisik alami serta kondisi geografis, dengan masing – masing prioritas pembangunan sebagai berikut :

a. **Sub Satuan Wilayah Pengembangan I**, yang berpusat di Tuban, meliputi wilayah satuan kawasan pembangunan kawasan Kecamatan

b. **Sub Satuan Wilayah Pengembangan II,** yang berpusat di Tambakboyo, meliputi wilayah satuan kawasan pembangunan Kecamatan Tambakboyo, dan Bancar. Prioritas pembangunan wilayah ini diarahkan pada pengembangan sektor perikanan, pertanian, industri dan pariwisata.

c. **Sub Satuan Wilayah Pengembangan III,** yang berpusat di Jatirogo, meliputi wilayah satuan kawasan pembangunan Kecamatan Jatirogo, dan Kenduruan. Prioritase pembangunan wilayah ini diarahkan pada pengembangan sektor pertanian, perkebunan, peternakan, kehutanan, pertambangan dan industri.

d. **Sub Satuan Wilayah Pengembangan IV,** yang berpusat di Singgahan, meliputi wilayah satuan kawasan pembangunan Kecamatan Singgahan, Parengan, Bangilan, dan Senori. Prioritas pembangunan wilayah ini diarahkan pada pengembangan sektor pertanian, pertambangan, peternakan, kehutanan, industri dan pariwisata.

e. **Sub Satuan Wilayah Pengembangan V,** yang berpusat di Rengel, meliputi wilayah satuan kawasan pembangunan Kecamatan Rengel,

I.2. Kondisi Jalan

Adapun kondisi jalan di wilayah studi khususnya pada jalan jalan nasional dan jalan propinsi pada posisi akhir tahun 2004 sebagai berikut :

Tabel 4.3. Kondisi Jalan di wilayah BPJ Bojonegoro

Jalan	Kondisi				
	Baik	Sedang	Rusak	Rusak Berat	Jumlah
Nasional	43,85	86,25	28,96	-	159,06
Propinsi	123,79	121,41	43,79	-	288,99

Sumber : Dinas PU Bina Marga Propinsi Jawa Timur.

Berdasarkan data tersebut di atas pada Jalan Nasional masih terdapat 28,96 Km dan Jalan Propinsi 43,79 Km jalan yang masih rusak. Hal ini tentunya akan sangat mengganggu dalam penyusunan jaringan lintas angkutan barang ini.

Untuk itulah perlu dilakukan pengamatan lapangan tentang kondisi

4.3. Masalah Pokok

Masalah pokok dalam pengaturan lalu lintas barang di Propinsi Jawa Timur ini adalah belum ditetapkannya jaringan lintas barang di Propinsi Jawa Timur, hal ini disebabkan karena hal – hal sebagai berikut :

1. Kurangnya perhatian pemerintah dalam penetapan jaringan lintas barang.
2. Ketersediaan data yang sangat terbatas.

4.4. Analisa Data

Setelah dilakukan pendataan lapangan untuk selajutnya adalah dilakukan analisa data yang ada guna dilakukan pertimbangan guna penetapan jaringan lintas angkutan barang di wilayah studi dengan memperhatikan :

4.1.1. Kebutuhan Angkutan.

Berdasarkan hasil survei yang telah dilakukan diperoleh data

el . 4.4 MATRIK ASAL TUJUAN MOBIL BARANG KELAS III B PADA WILAYAH STUDI PADA TAHUN 2005 (kendaraan/hari)

	Lamongan	Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng	
juan	1	2	3	4	5	6	7	Jumlah oi
		1	9	32	9	8	36	95
	1		1	62	21	8	65	158
	9	1		59	5	9	61	144
	31	49	54		9	5	80	228
	5	22	9	13		0	16	65
	5	5	6	9	0		10	36
	37	66	59	81	14	11		269
ld	51	144	78	175	45	30	269	995

Sumber : Hasil Survei

el . 4.5 MATRIK ASAL TUJUAN MOBIL BARANG KELAS III A PADA WILAYAH STUDI PADA TAHUN 2005 (kendaraan/hari)

	Lamongan	Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng	
ujuan	1	2	3	4	5	6	7	Jumlal oi
		1	7	25	7	6	28	74
	1		1	48	16	6	51	123
	7	1		46	4	7	48	112

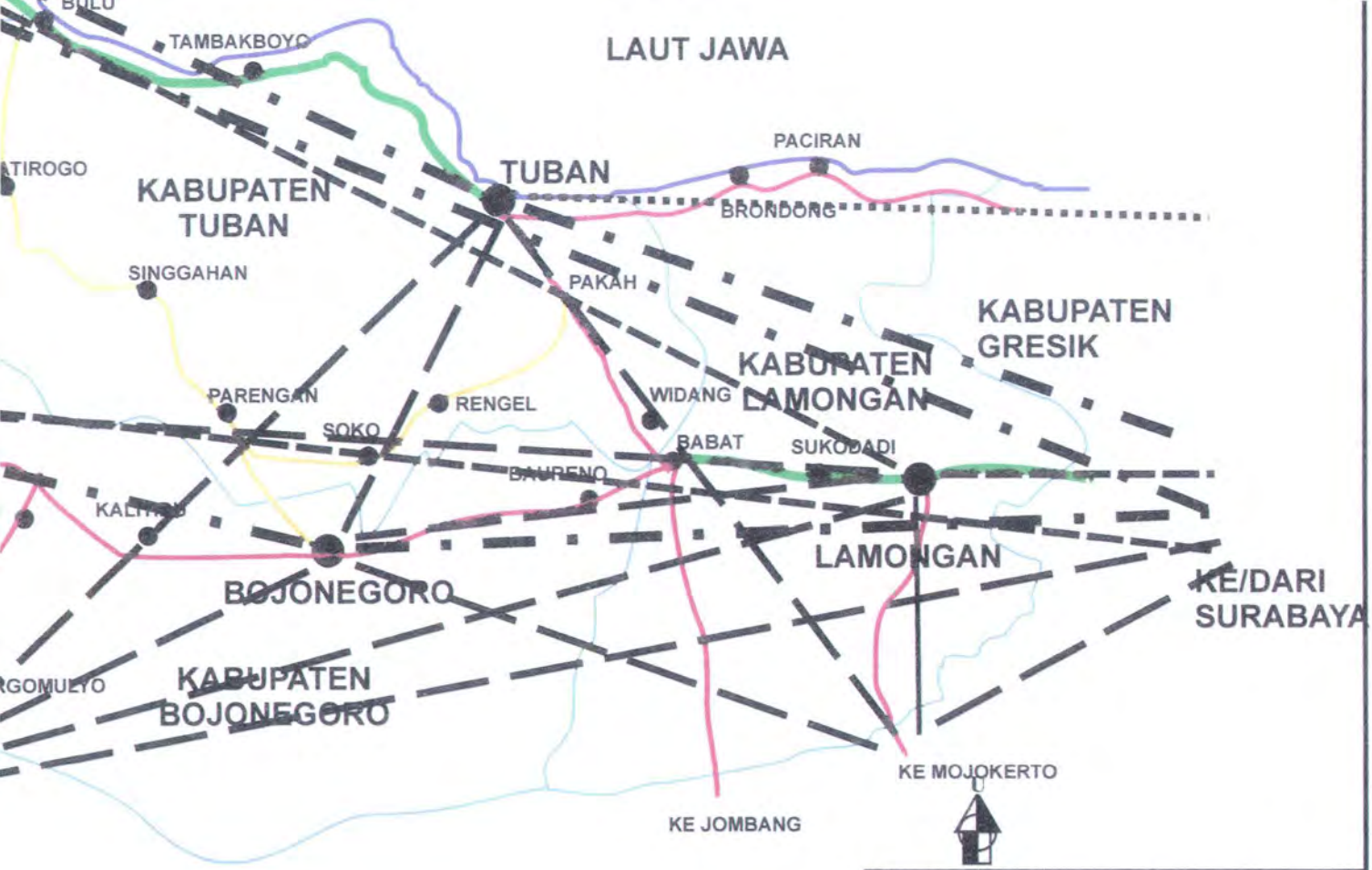
Tabel . 4.6 MATRIK ASAL TUJUAN MOBIL BARANG KELAS II PADA WILAYAH STUDI PADA TAHUN 2005 (kendaraan/hari)

	Lamongan	Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng	
Tujuan	1	2	3	4	5	6	7	Jum o
1		1	4	14	4	3	16	4
2	0		0	28	9	4	29	7
3	4	0		26	2	4	27	6
4	14	17	19		4	2	36	9
5	2	8	3	5		0	7	2
6	2	2	2	3	0		5	1
7	16	23	21	29	5	4		9
ah dd	23	51	28	76	20	13	119	4(

Sumber : Hasil Survei

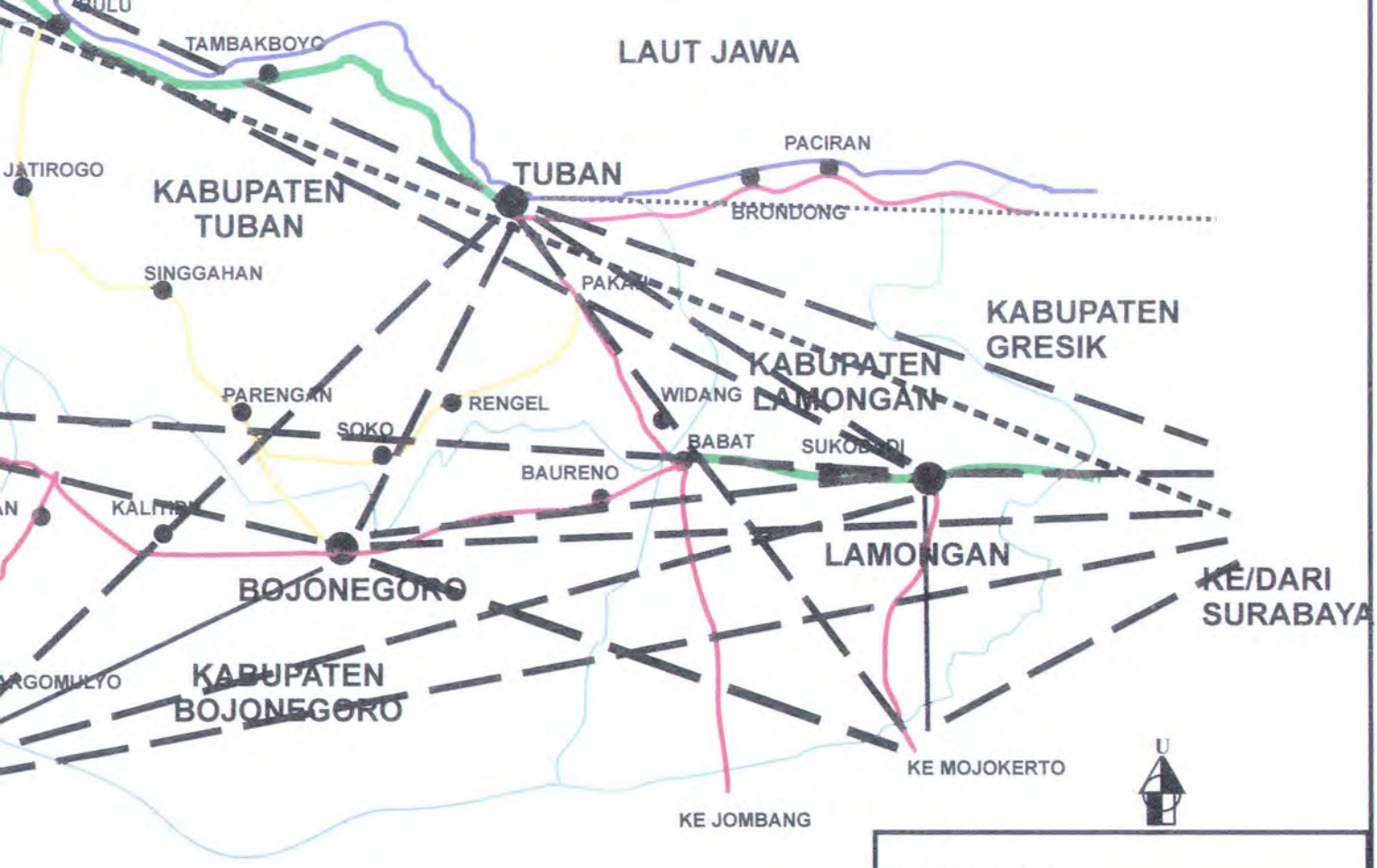
Tabel . 4.7 MATRIK ASAL TUJUAN TOTAL MOBIL BARANG PADA WILAYAH STUDI PADA TAHUN 2005 (kendaraan/hari)

	Lamongan	Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng	
Tujuan	1	2	3	4	5	6	7	Jun o
1		3	20	71	20	17	80	2
2	2		2	138	46	18	145	3



KETERANGAN

SKALA



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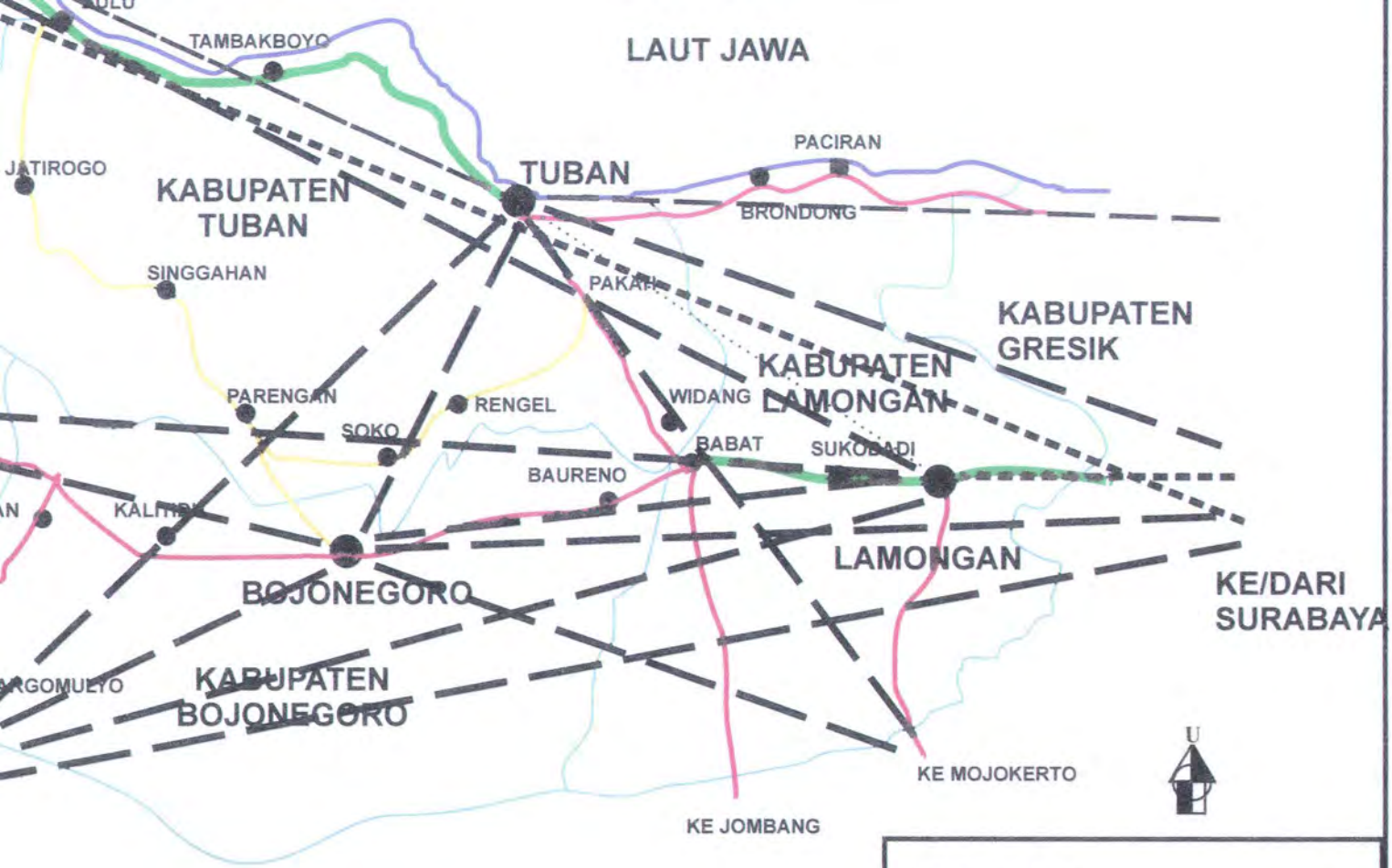
SKALA

61-90

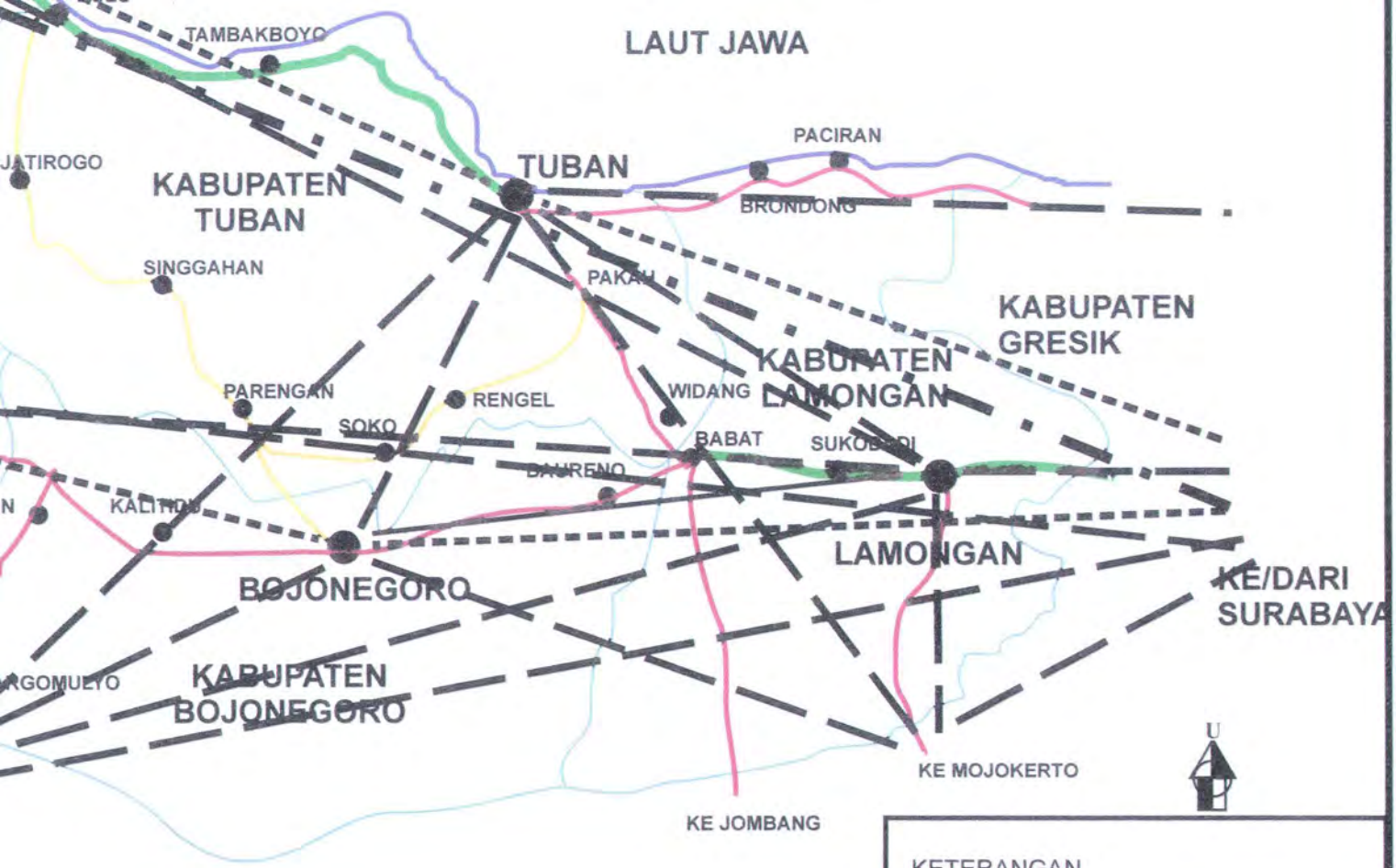


KETERANGAN

SKALA

61-90

BAR : 4.3 PETA DESIRE LINE MOBIL BARANG KELAS II



KETERANGAN

SKALA

121-180
61-120
1-60

BAR : 4.4 PETA DESIRE LINE TOTAL MOBIL BARANG

Berdasarkan data di atas terlihat bahwa pergerakan angkutan barang dominan berasal tujuan Jawa Tengah dan Surabaya, dengan kata lain angkutan barang yang ada cenderung hanya melintasi wilayah Ex Karisidenan Bojonegoro.

Berdasarkan data tersebut di atas dapat diprakirakan pula jumlah kebutuhan angkutan di masa mendatang (rencana 2010), dengan tahapan kegiatan sebagai berikut :

1. Memprakirakan jumlah PDRB di wilayah Studi, dengan hasil analisis pertumbuhan PDRB dari tahun ke tahun sampai tahun 2010 pada halaman berikut.

2. Melakukan Analisis Regresi dengan Jumlah Perjalanan sebagai variabel Y dan PDRB sebagai variabel X, guna mencari rumusan regresi bagi bangkitan dan tarikan perjalanan pada tahun 2005.

ata - rata (%)	Prakiraan									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
4	5	6	7	8	9	10	11	12	13	14
2,063	1.292,87	1.319,54	1.346,75	1.374,53	1.402,88	1.431,82	1.461,36	1.491,50	1.522,26	1.553,66
1,288	691,31	700,21	709,23	718,36	727,61	736,98	746,47	756,08	765,82	775,68
1,387	1.019,86	1.034,00	1.048,33	1.062,87	1.077,61	1.092,55	1.107,70	1.123,06	1.138,63	1.154,42
5,105	1.259,27	1.323,55	1.391,11	1.462,13	1.536,76	1.615,21	1.697,66	1.784,32	1.875,40	1.971,14
2,211	1.143,73	1.169,01	1.194,85	1.221,27	1.248,27	1.275,86	1.304,07	1.332,90	1.362,36	1.392,48
10,406	14.634,31	16.157,22	17.838,61	19.694,98	21.744,52	24.007,36	26.505,67	29.263,96	32.309,30	35.671,55
2,239	58.750,18	60.754,06	63.252,17	64.668,44	66.116,42	67.596,81	69.110,36	70.657,80	72.239,88	73.857,39
3,708	19.640,25	20.368,55	21.123,85	21.907,16	22.719,51	23.561,99	24.435,71	25.341,83	26.281,55	27.256,11

Tabel 4.9 Analisa Bangkitan Perjalanan Th 2005

Kab/kota	Y	X
Lamongan	211	1221,27
Tuban	351	1462,13
Bojonegoro	319	1221,27
Surabaya	507	19694,98
Mojokerto	145	1374,53
Ngawi	81	718,36
Jawa Tengah	597	21907,16

Sumber : Hasil Analisis

Berdasarkan data tersebut di atas dengan melakukan Analisis Regresi dengan menggunakan program SPSS 11 dengan hasil output di lampiran, maka diperoleh rumusan Bangkitan Perjalanan sebagai berikut:

Y = 0,01712X + 199,409

Rumusan tersebut di atas dipergunakan untuk mencari potensi bangkitan perjalanan dimasa mendatang (tahun 2010) dengan memasukkan nilai prakiraan jumlah PDRB di tahun yang sama (2010).

Tabel 4.10. Analisa Tarikan Perjalanan Th 2005

Kab/kota	Y	X
Lamongan	196	1221,27
Tuban	321	1462,13
Bojonegoro	306	1221,27
Surabaya	389	19694,98
Mojokerto	130	1374,53
Ngawi	91	718,36
Jawa Tengah	597	21907,16

Sumber : Hasil Analisis

Berdasarkan data tersebut di atas dengan melakukan Analisis Regresi dengan menggunakan program SPSS 11 dengan hasil output di lampiran, maka diperoleh rumusan Tarikan Perjalanan sebagai berikut:

Y = 0,01498X + 188,155

Rumusan tersebut di atas dipergunakan untuk mencari Tarikan Perjalanan dimasa mendatang (tahun 2010) dengan memasukkan nilai prakiraan jumlah PDRB di tahun yang sama (2010).

Tabel 4.11. Hasil Prakiraan Bangkitan Perjalanan Th 2010

Kab/kota	Y	X
Lamongan	223	1392,48
Tuban	233	1971,14
Bojonegoro	219	1154,42
Surabaya	810	35671,55
Mojokerto	226	1553,66
Ngawi	213	775,68
Jawa Tengah	666	27256,11

Sumber : Hasil Analisis

Dengan memasukan nilai PDRB variabel X di tiap – tiap kabupaten pada tahun 2010 maka dapat diperoleh bangkitan perjalanan Y di tahun 2010.

Tabel 4.12. Hasil Prakiraan Tarikan Perjalanan Th 2010

Kab/kota	Y	X
Lamongan	209	1392,48
Tuban	218	1971,14
Bojonegoro	205	1154,42
Surabaya	723	35671,55
Mojokerto	211	1553,66

1.4.2. Kelas jalan yang sama / lebih tinggi,

Berdasarkan hasil survei dan pendataan dilapangan diperoleh data kondisi jalan dan kelas jalan yang ada di wilayah Ex Karisidenan Bojonegoro sebagai berikut :

Tabel 4.13. Karakteristik dan Kelas Jalan di wilayah Ex Karisidenan Bojonegoro

Jalan	Karakteristik				
	Panjang (km)	Lebar (m)	Fungsi	Kelas Jalan	D
sional					
Jl. Tuban – Bulu	44,10	14	A	IIIA	
Jl. Tuban – Babat	32,30	14	A	IIIA	
Jl. Babat – Lamongan	29,44	24	A	II	
Jl. Lamongan – Gresik	21,62	24	A	II	
Jl. Tuban – Paciran	24,55	12	K	IIIA	
Jl. Babat – Bojonegoro	34,67	12	A	IIIA	
Jl. Bojonegoro – Padangan	22,54	12	A	IIIA	
Jl. Padangan – Ngawi	27,72	12	K	IIIA	
Jl. P. Sudirman (Tuban)	1,78	12	K	IIIA	
. Jl. Martadinata (Tuban)	0,76	11	K	IIIA	
. Jl. Raya Semarang (Tuban)	0,46	12	A	IIIA	
. Jl. Padangan – Bojonegoro	28,90	12	K	IIIA	
. Jl. MT Haryono (Bojonegoro)	1,59	12	K	IIIA	
. Jl. A. Yani (Bojonegoro)	0,89	12	K	IIIA	
opinsi					
Jl. Padangan – Bts. Jateng	2,13	11	A	IIIA	
Jl. Bojonegoro – Ponco	6,69	12	A	IIIA	
Jl. B. Rahmat (Bj.Negoro)	1,52	12	K	IIIA	
Jl. Sawunggaling (Bj. Negoro)	0,95	12	K	IIIA	
Jl. JA. Suprapto (Bj. Negoro)	0,32	12	K	IIIA	
Jl. Ronco – Pakah	35,58	12	A	IIIA	


BULU
TAMBAKBOYO
LAUT JAWA
PACIRAN
JATIROGO
KABUPATEN TUBAN
TUBAN
BRONDONG
SINGGAHAN
PAKAH
KABUPATEN GRESIK
KABUPATEN LAMONGAN
PARENGAN
RENGEL
WIDANG
SOKO
BABAT
SUKODADI
BAURENO
KALITIDU
LAMONGAN
BOJONEGORO
MARGOMULYO
KABUPATEN BOJONEGORO
KE MOJOKERTO
KE JOMBANG
U
KETERANGAN
JALAN KELAS II

Berdasarkan data prasarana jalan itulah yang nantinya dijadikan bahan pertimbangan dalam menetapkan jaringan lintas angkutan barang, dimana saat ini jaringan jalan yang ada dilihat dari kelas jalan dan daya dukungnya masih terputus – putus dan belum memiliki keseragaman. Ada beberapa ruas jalan yang saat ini telah memiliki daya dukung yang sangat tinggi, namun ruas jalan yang lain masih rendah.

.4.3. Tingkat keselamatan angkutan barang.

Dalam menentukan tingkat keselamatan angkutan barang ada beberapa hal yang perlu dijadikan pertimbangan, diantaranya : penerangan jalan, daya dukung, lebar jalan, gradient atau elevasi jalan, kelengkapan fasilitas jalan seperti rambu, marka dan alat pengatur isyarat lalu lintas, dan tingkat kecelakaan di jalan tersebut.

Guna memudahkan penilaian kriteria ini maka dilakukan scoring sebagai berikut :

1. A = Sangat baik sekali.
2. B = Baik

Ex Karisidenan Bojonegoro yang meliputi Kabupaten Lamongan, Bojonegoro dan Tuban sebagai berikut :

Tabel 4.14.
Tingkat Keselamatan Angkutan Barang di wilayah Ex Karisidenan Bojonegoro

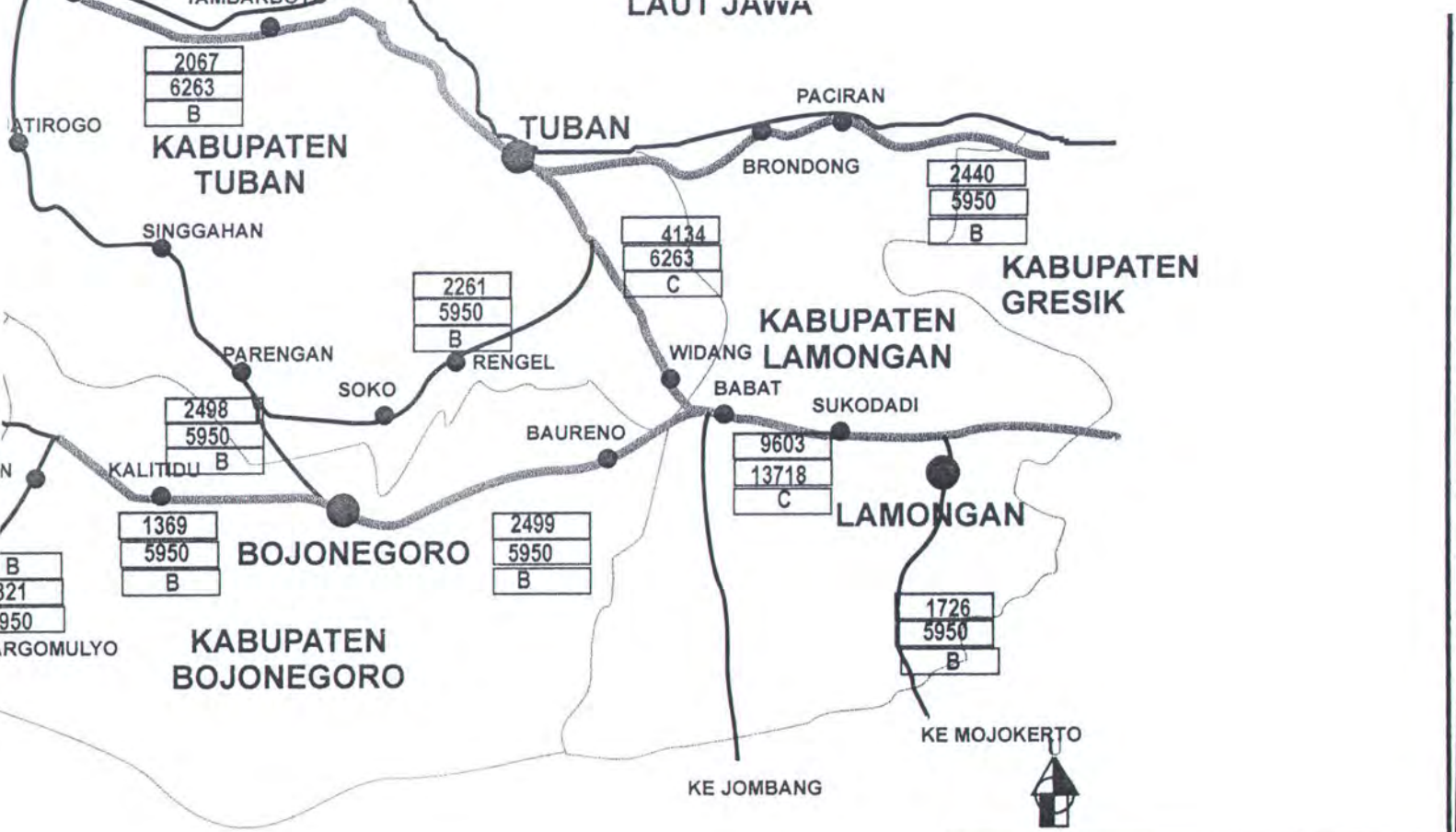
Jalan	Tk. Keselamatan	Keterangan
sional		
Jl. Tuban – Bulu	C	kurang lampu jalan, daya dukung k
Jl. Tuban – Babat	C	kurang lampu jalan, daya dukung k
Jl. Babat – Lamongan	C	kurang lampu jalan, daya dukung k
Jl. Lamongan – Gresik	B	
Jl. Tuban – Paciran	B	
Jl. Babat – Bojonegoro	C	kurang lampu jalan, daya dukung k
Jl. Bojonegoro – Padangan	C	kurang lampu jalan, daya dukung k
Jl. Padangan – Ngawi	B	
Jl. P. Sudirman (Tuban)	B	
Jl. Martadinata (Tuban)	B	
Jl. Raya Semarang (Tuban)	B	
Jl. Padangan – Bojonegoro	C	kurang lampu jalan
Jl. MT Haryono (Bojonegoro)	B	
Jl. A. Yani (Bojonegoro)	B	
opinsi		
Jl. Padangan – Bts. Jateng	C	kurang lampu jalan
Jl. Bojonegoro – Ponco	C	kurang lampu jalan
Jl. B. Rahmat (Bj.Negoro)	B	
Jl. Sawunggaling (Bj. Negoro)	B	
Jl. JA. Suprapto (Bj. Negoro)	B	
Jl. Ponco – Pakah	C	kurang lampu jalan
Jl. Lamongan – Bts. Mj.kerto	C	kurang lampu jalan

.4.4. Tingkat pelayanan jalan

Dalam penetapan jaringan lintas juga diwajibkan mempertimbangkan tingkat pelayanan jalan. Berdasarkan hasil survei yang telah dilakukan diperoleh data volume lalu lintas, kapasitas jalan dan tingkat pelayanan jalan yang berdasarkan analisa MKJI dapat disajikan data sebagai berikut :

Tabel 4.15. Tingkat Pelayanan Jalan di wilayah Ex Karisidenan Bojonegoro

Jalan	Lebar (m)	Cap (Smp/jam)	Vol (Smp/jam)	V/C	
sional					
l. Tuban – Bulu	14	6263	2067	0,33	
l. Tuban – Babat	14	6263	4134	0,66	
l. Babat – Lamongan	24	13718	9603	0,70	
l. Lamongan – Gresik	24	13718	9877	0,72	
l. Tuban – Paciran	12	5950	2440	0,41	
l. Babat – Bojonegoro	12	5950	2499	0,42	
l. Bojonegoro – Padangan	12	5950	1369	0,23	
l. Padangan – Ngawi	12	5950	2321	0,39	
l. P. Sudirman (Tuban)	12	5950	4106	0,69	
Jl. Martadinata (Tuban)	11	5950	4403	0,74	
Jl. Raya Semarang (Tuban)	12	5950	4284	0,72	
Jl. Padangan – Bojonegoro	12	5950	2440	0,41	
Jl. MT Haryono (Bojonegoro)	12	5950	3749	0,63	
Jl. A. Yani (Bojonegoro)	12	5950	3451	0,58	
opinsi					
l. Padangan – Bts. Jateng	11	5772	1270	0,22	
l. Bojonegoro – Ponco	12	5950	2498	0,42	
l. B. Rahmat (Bj.Negoro)	12	5950	3273	0,55	


LAUT JAWA
2067
6263
B
KABUPATEN
TUBAN
TUBAN
PACIRAN
BRONDONG
2440
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KABUPATEN
GRESIK
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4134
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RENGEL
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SOKO
BABAT
SUKODADI
2498
5950
B
BAURENO
9603
13718
C
KALITIDU
LAMONGAN
1369
5950
B
BOJONEGORO
2499
5950
B
1726
5950
B
KABUPATEN
BOJONEGORO
KE MOJOKERTO
KE JOMBANG
KETERANGAN
JALAN NASIONAL
JALAN PROPINSI
BATAS KABUPATEN
743 Kend
VOLUME LALU LINTAS

4.5. Tersedianya terminal angkutan barang

Berdasarkan ketentuan yang berlaku dalam penetapan jaringan lintas angkutan barang harus mempertimbangkan tersedianya terminal angkutan barang. Berdasarkan hasil survei pada saat ini terdapat terminal angkutan barang di wilayah Ex Karisidenan Bojonegoro yakni terletak di Widang yang terletak di ruas Tuban – Babat.

Terminal ini sangat bermanfaat dalam meningkatkan pelayanan angkutan barang dan memberikan kesempatan istirahat kepada pengemudi angkutan barang.

Lokasi terminal dimaksud bila diperhatikan letak geografisnya dan juga dengan memperhatikan arah pergerakan angkutan barang yang ada, serta kondisi karakteristik dan daya dukung jalan, dapat dikatakan sudah sangat tepat dan strategis. Lokasi terminal Angkutan barang ini dapat dilihat pada gambar 4.3.

KETERANGAN

TERMINAL ANGK. BARANG

JALAN KELAS II

.4.6. Rencana Umum Tata Ruang

Dalam rangka kebijaksanaan perwilayahan Propinsi Jawa Timur, wilayah Kabupaten Bojonegoro, Tuban dan Lamongan berada pada pengembangan SWP (Satuan Wilayah Pengembangan) dengan pusat pengembangan di Kota Tuban.

Pada saat ini diwilayah Ex Karisidenan Bojonegoro di wilayah utara telah dikembangkan industri berat seperti semen dan telah tersedia dermaga khusus milik PT Semen Gresik di Tuban, serta di bangun pula dermaga penyeberangan antar pulau di Paciran. Industri dan prasarana pelabuhan ini memerlukan prasarana jalan pendukung yang memadai agar dapat dilewati kendaraan dengan tonase yang besar.

Demikian pula di sebelah barat, saat ini telah dilakukan pengembangan pertambangan gas dan minyak di Blok Cepu, sehingga memerlukan pula prasarana jalan pendukung yang memadai agar dapat dilewati kendaraan dengan tonase yang besar guna menuju Kota Surabaya dan kota – kota lain di Jawa Timur bagian timur.

bagi lingkungan. Justru dengan ditetapkannya jaringan lintas barang ini yang diikuti dengan perbaikan dan peningkatan kemapuan jalan maka dampak buruk terhadap lingkungan dapat dikurangi.

4.5. Penetapan Jaringan Lintas Angkutan Barang

Berdasarkan hasil analisa yang telah dilakukan dengan mempertimbangkan berbagai faktor, maka dapat direkomendasikan jaringan lintas angkutan barang yang dapat dilewati kendaraan dengan MST maksimal 10 Ton di wilayah Ex Karisidenan Bojonegoro sebagai berikut :

1. Ruas Bulu – Tuban.
2. Ruas Tuban – Babat.
3. Ruas Babat – Gresik.
4. Ruas Babat – Bojonegoro.
5. Ruas Babat – Jombang.
6. Ruas Bojonegoro – Padangan – Cepu.
7. Ruas Padangan – Ngawi.

KETERANGAN

JARINGAN LINTAS UTK JL KLAS II

BAB V

KESIMPULAN DAN SARAN

BAB V

KESIMPULAN DAN SARAN

5.1. KESIMPULAN

Berdasarkan hasil analisa dan pembahasan seperti telah diuraikan pada bab terdahulu, maka dapat ditarik kesimpulan sebagai berikut :

1. Penetapan jaringan lintas harus memperhatikan kebutuhan angkutan, dimana berdasarkan hasil analisis potensi total bangkitan dan tarikan perjalanan di wilayah studi di prakirakan pada tahun 2010 mencapai 2.590 perjalanan kendaraan /hari, dengan asal perjalanan tertinggi adalah Surabaya sebanyak 810 perjalanan kendaraan / hari, dan tarikan perjalanan sebesar 723 perjalanan kendaraan/hari, dengan kata lain angkutan barang yang ada cenderung hanya melintasi wilayah Ex Karisidenan Bojonegoro.
2. Prasarana jalan saat ini terlihat bahwa jaringan jalan utama yang ada pada umumnya memiliki kelas jalan IIIA dan daya dukung jalan pada umumnya 8 Ton. Tingkat pelayanan jalan yang ada di wilayah studi pada umumnya di level B dan C, atau dapat dikatakan masih baik dan belum tampak ada

Babat, Babat-Gresik, Babat-Bojonegoro, Babat-Jombang, Bojonegoro-Padangan-Cepu, Padangan-Ngawi, Tuban-Paciran-Gresik, Pakah-Rengel-Bojonegoro, dan Bojonegoro-Jatirogo-Bulu yang dapat dilewati kendaraan dengan muatan sumbu sama atau lebih besar dari 10 Ton, sehingga untuk selanjutnya diperlukan adanya penetapan jaringan lintas angkutan barang yang dapat mengakomodasi kondisi ini dengan mempertimbangkan berbagai faktor seperti telah diuraikan pada bab terdahulu.

5.2. SARAN

Berdasarkan kesimpulan tersebut di atas maka dapat direkomendasikan saran – saran sebagai berikut :

1. Guna menunjang jaringan lintas barang yang ada maka beberapa ruas jalan nasional dan propinsi yang ada harus ditingkatkan daya dukung dan kelas jalannya yaitu :
   a. Jalan yang saat ini masuk katagori kelas IIIA ditingkatkan menjadi kelas II.
   b. Jalan yang saat ini masuk katagori IIIB ditingkatkan menjadi kelas IIIA.

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LAMPIRAN

KLASIFIKASI KELAS JALAN DAN DESAIN GEOMETRI

TABEL 1 : KELAS JALAN BERDASARKAN TINGKAT GRADIENT

.S JALAN / JDARAAN	GRADIENT	KETERANGAN
ST 10 Ton)	≤ 5 %	Mobil barang dgn kereta gand/tempelan (max. 18 m)
MST 8 Ton)	≤ 7 %	Mobil barang dgn kereta gand/tempelan (max. 18 m)
MST 8 Ton)	≤ 8 %	Mobil barang tungggal (max 12 m)

TABEL 2 : KELAS JALAN BERDASARKAN LEBAR PERKERASAN

AS JALAN / NDARAAN	LEBAR JALUR (M)	KETERANGAN
MST 10 Ton)	≥ 7	Mobil barang dgn kereta gand/tempelan (max. 18 m)
(MST 8 Ton)	≥ 7	Mobil barang dgn kereta gand/tempelan (max. 18 m)
(MST 8 Ton)	≥ 6	Mobil barang tungggal (max 12 m)

TABEL 3 : KELAS JALAN BERDASARKAN RADIUS BELOK

AS JALAN / NDARAAN	RADIUS BELOK (M)	KETERANGAN
MST 10 Ton)	≥ 115	Mobil barang dgn kereta gand/tempelan (max. 18 m)
(MST 8 Ton)	≥ 115	Mobil barang dgn kereta gand/tempelan (max. 18 m)
(MST 8 Ton)	≥ 80	Mobil barang tungggal (max 12 m)

TABEL 5 : KELAS JALAN BERDASARKAN KECEPATAN RENCANA

S JALAN / ERAN	KECEP. RENCANA (KM/JAM)	KETERANGAN
;T 10 Ton) / ;ri Primer	≥ 70	Mobil barang dgn kereta gand/tempelan (panjang kendaraan maximum 18 m)
IST 8 Ton) / /Kol. Primer	≥ 60	Mobil barang dgn kereta gand/tempelan (panjang kendaraan maximum 18 m)
MST 8 Ton) ktor Primer	≥ 60	Mobil barang tungggal (panjang kendaraan maximum 12 m)

KONDISI GEOMETRI JALAN					KETERANGAN
GRADIENT	LEBAR (M)	RADIUS BELOK (M)	KECEPT (KPJ)	KEKUATAN ASPAL	
≤ 7%	7 — 14	≥ 115	≥ 60	Kuat sekali	Memenuhi
≤ 7%	7	≥ 115	≥ 60	Kuat	Memenuhi
≤ 7%	7	≥ 115	≥ 60	Kuat	Memenuhi
≤ 7%	7	≥ 115	≥ 60	Kuat	Memenuhi
≥ 7%	7	**< 115**	≤ 60	Biasa	Tidak memenuhi
≥ 7%	6 — 7	**< 115**	≤ 60	Biasa	Tidak memenuhi
≤ 7%	7	≥ 115	≤ 60	Rapuh & bergelombang	Tidak memenuhi
≤ 7%	7	≥ 115	≤ 60	Rapuh & bergelombang	Tidak memenuhi
≥ 7%	7	**< 115**	≤ 60	Biasa	Tidak memenuhi
≥ 7%	7	**< 115**	≤ 60	Rapuh & berlubang	Tidak memenuhi

RANAN / KELAS EXISTING	KONDISI FISIK JALAN		KETERANGAN
	GEOMETRIK	JENIS PERKERASAN	
Arteri Primer / II	Memenuhi	Beraspal	
Arteri Primer / II	Memenuhi	Beraspal	
Arteri Primer / II	Memenuhi	Beraspal	
Arteri Primer / II	Memenuhi	Beraspal	
Kolektor 2 / IIIA	Tidak Memenuhi	Beraspal	Alignment vertical/horizontal
Kolektor 2 / IIIA	Tidak Memenuhi	Beraspal	Alignment vertical/horizontal
Arteri Primer / II	Memenuhi	Beraspal	
Arteri Primer / II	Memenuhi	Beraspal	
Arteri Primer / II	Tidak Memenuhi	Beraspal	Alignment vertical/horizontal
Kolektor 2 / IIIA	Tidak Memenuhi	Beraspal	Alignment vertical/horizontal

RADIUS BELOK	KECEPATAN RATA-RATA	LEBAR PERKERASAN	JENIS PERKERASAN	KELAS JALAN	FUNGSI JALAN	STATUS JALAN
250 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
400 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
350 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
260 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
230 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
230 m	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
LURUS	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
LURUS	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
LURUS	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
LURUS	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara
LURUS	60 kpj	6 m	Asphalt Concrete.	II	A P	Negara

GAN ANG	RADIUS BELOK	KECEPATAN RATA-RATA	LEBAR PERKERASAN	J E N I S PERKERASAN	KELAS JALAN	FUNGSI JALAN	STATUS JALAN
	4	5	6	7	8	9	10
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara

%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	100 m	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
	60 m	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	200 m	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara

%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	LURUS	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
	100 m	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara
%	140 m	60 kpj	7 m	Asphalt Concrete	III A	A P	Negara

MPIRAN :

Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng			
2	3	4	5	6	7	Jumlah oi	JmlTh Ren Oi (2010)	Ei
3	20	71	20	17	80	211		
	2	138	46	18	145	351		
2		130	12	19	136	319		
109	120		21	11	178	507		
49	19	29		1	35	145		
11	13	21	1		23	81		
147	132	181	30	25		597		
321	174	389	100	66	597	2211		

	2000
	4
,55	1.266,74
,13	682,52
,06	1.005,91
,12	1.198,11
,81	1.118,99
,14	13.254,94
97	56.856,52
,00	18.938,00

lawa Tengah

gression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	X[a]	,	Enter

a. All requested variables entered.

b. Dependent Variable: Y

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,873[a]	,763	,715	100,384

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	,763	16,055	1	5	,010

a. Predictors: (Constant), X

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161781,84	1	161781,836	16,055	,010[a]
	Residual	50385,021	5	10077,004		
	Total	212166,86	6			

a. Predictors: (Constant), X

b. Dependent Variable: Y

Coefficients[a]

gression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	X[a]	,	Enter

a. All requested variables entered.

b. Dependent Variable: Y

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,831[a]	,690	,628	105,408

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	,690	11,138	1	5	,021

a. Predictors: (Constant), X

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	123750,08	1	123750,084	11,138	,021[a]
	Residual	55553,916	5	11110,783		
	Total	179304,00	6			

a. Predictors: (Constant), X

b. Dependent Variable: Y

Coefficients[a]

Bangkitan Perjalanan 2005

	Y	X
an	211	1221,27
	351	1462,13
oro	319	1221,27
a	507	19694,98
o	145	1374,53
	81	718,36
ngah	597	21907,16

Analisis Tarikan Perjalanan 2005

Kab/kota	Y	X
Lamongan	196	1221,27
Tuban	321	1462,13
Bojonegoro	306	1221,27
Surabaya	389	19694,98
Mojokerto	130	1374,53
Ngawi	91	718,36
Jawa Tengah	597	21907,16

menggunakan Analisis Regresi

an **Bangkitan Perjalanan :**
PSS) Y = 0,01712X + 199,409

Tarikan Perjalanan :
Y = 0,01498X + 188,155

an Bangkitan Perjalanan 2010

a	Y	X
an	223	1392,48
	233	1971,14
oro	219	1154,42
a	810	35671,55
to	226	1553,66
	213	775,68
engah	666	27256,11

Prakiraan Tarikan Perjalanan 2010

Kab/kota	Y	X
Lamongan	209	1392,48
Tuban	218	1971,14
Bojonegoro	205	1154,42
Surabaya	723	35671,55
Mojokerto	211	1553,66
Ngawi	200	775,68
Jawa Tengah	596	27256,11

ALISIS DISTRIBUSI PRJALANAN DENGAN METODE RATA - RATA)

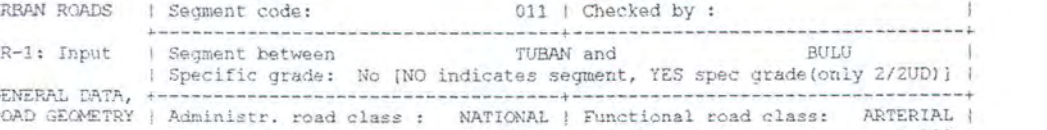
Tuban	Bojonegoro	Surabaya	Mojokerto	Ngawi	Jateng			
2	3	4	5	6	7	Jumlah oi	JmlTh Ren Oi (2010)	Ei
3	20	71	20	17	80	211	223	1,1
	2	138	46	18	145	351	233	0,7
2		130	12	19	136	319	219	0,7
109	120		21	11	178	507	810	1,6
49	19	29		1	35	145	226	1,6
11	13	21	1		23	81	213	2,6
147	132	181	30	25		597	666	1,1
321	306	389	130	91	597	2211		
218	205	723	211	200	596		2590	
0,7	0,7	1,9	1,6	2,2	1,0			1,330

ALISIS DISTRIBUSI PRJALANAN DENGAN METODE RATA - RATA)

2	3	4	5	6	7	Jumlah oi	JmlTh Ren Oi (2010)	Ei
3	17	103	27	28	82	260	223	0,858
	1	174	53	26	121	376	233	0,620
1		165	14	27	115	340	219	0,644
124	136		34	21	231	637	810	1,273
55	21	50		2	45	188	226	1,203
18	21	47	2		42	153	213	1,393
132	118	269	41	41		691	666	0,964
333	197	539	129	104	635	2644		
218	205	723	211	200	596		2590	
0,654	1,041	1,339	1,634	1,930	0,939			0,994

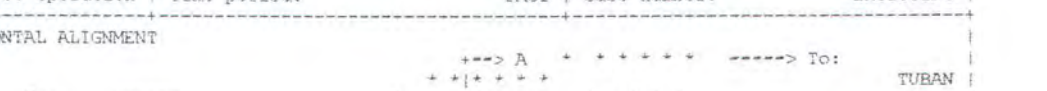
J I	Province	JAWA TIMUR	Date : 12 JULI 2006
	Link number:	01	Handled by : BAMBANG
URRAN ROADS	Segment code:	011	Checked by :
a IR-1: Input	Segment between	TUBAN and	BULU
	Specific grade: No [NO indicates segment, YES spec grade(only 2/2UD)]		
GENERAL DATA, ROAD GEOMETRY	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	4/2UD	Length (km) : 2.300
pose: Operation	Time period:	PAGI	Case number: EKSISTING

IZONTAL ALIGNMENT



Horizontal curvature (radians/km):	NA	Roadside development	Side A	Side B	Mean
Sight distance > 300 m (%) :	NA	Default: 0%	0 %	0 %	0 %
Sight distance class (default= B):					

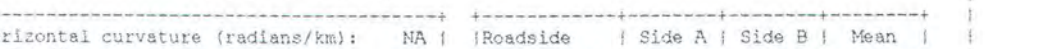
TICAL ALIGNMENT



Only for specific grade analysis	
Rise+fall : NA m/km	Grade length (km) :
Alignment type: FLAT (FLAT = default)	Grade slope (%) :
	Climbing lane (Y/N) :

SS SECTION

Undivided road



UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	7.00	7.00	14.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

AD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

HOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
urface type [Flexible/Concrete/Other]	NotAvail			NotAvail
rop from carriageway to shoulder (cm)	0			0
sability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

FFECTIVE WIDTHS

I -- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
m IR-2: Input	Segment code:	011	Checked by:
FFIC FLOW, SIDE FRICTION	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	4/2UD	Length (km) : 2.300
pose: Operation	Time period :	PAGI	Case number: EKSISTING

AFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
CLASSIFIED-HOURLY			
CLass/AAdt/UNclass)			50 - 50 %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values	56.99	19.75	6.339	3.063	13.84	100.0
normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

raffic flow data for whole segment analysis:

ow)	Di- rec-	Light Vehicle		Med Heavy Veh		Large Bus		Large Truck		MotorCycle		Total flow Q		
.1) .2)	tion	pce,1= 1.00 pce,2= 1.00		pce,1= 1.42 pce,2= 1.42		pce,1= 1.44 pce,2= 1.44		pce,1= 2.06 pce,2= 2.06		pce,1= 0.62 pce,2= 0.62				
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (%)	veh/h	pcu/h
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	539	539	187	266	60	86	29	60	131	82	49.97	946	1033
4	Dir2	540	540	187	266	60	86	29	60	131	82	50.02	947	1034
5	1+2	1079	1079	374	532	120	172	58	120	262	164		1893	2067
6	Note. If specific grade then							Directional split, SP= Q1/(Q1+Q2)=					49.9%	49.9%
7	dir 1 = uphill, dir 2= downhill							Pcu-factor, Fpcu =						1.091

DE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

Determination of frequency of events

Calculation of weighted frequency of events per 200 m and 200 m of the considered road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
	Pedestrians	PED	0.6	NA / h,200m	NA
Frequencies are for both sides of the road.	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped	VL= very low

I -- INTERURBAN ROADS	Province: JAWA TIMUR	Date:	12 JULI 2006
	Link number: 01	Handled by:	BAMBANG
m IR-3: Analysis	Segment code: 011	Checked by:	
SPEED, CAPACITY	Administr. road class : NATIONAL	Functional road class:	ARTERIAL
	Road type : 4/2UD	Length (km) :	2.300
pose: Operation	Time period : PAGI	Case number:	EKSISTING

EE FLOW SPEEDS.

tion to enter other free flow speeds: No

- | Base free-flow speed FVo (km/h)					Carriage-way width adjust-ment, FVw	FVo+FVw Light vehicle	Adjustment factors		Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc				
c-| on| for different vehicles Table B-1:1 or B-1:2							Side friction FFVsf Tab B3:1	Land use Road func FFVrc Tab B4:1	Light vehicle (4*5+6)	Other vehicle types			
LV (2)	MHV	LB	LT	MC	Tab B2:1 (km/h) (3)	(2)+(3) (km/h) (4)	(5)	(6)	(7)	MHV	LB	LT	MC
2 |74.0	63.0	78.0	60.0	60.0	0.0	74.0	0.970	1.000	71.78	61.11	75.66	58.20	58.20

mments: User FFV, dir1: None dir2:

APACITY

rec-|Base Capacity|		Adjustment factors for capacity			Actual capacity, C
tion |	Co Table C-1:1 pcu/h (11)	Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)	
1+2	6800	1.000	1.000	0.950	6459	

CTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

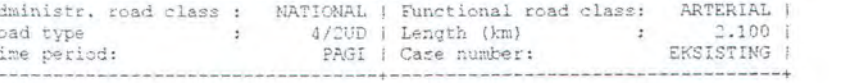
t- | ec-| ion| Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed,Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	D1-rec-tion	Degree of bunching DB Fig D3:1 (31)
2 | 2067	0.320	66.53	2.300	124.436	56.64	70.13	53.95	53.95		

pace for user remark:

ogram version 1.10F \| Date of run: 060822/15:09

I I	Province	JAWA TIMUR	Date : 12 JULI 2006
	Link number:	01	Handled by : BAMBANG
RURBAN ROADS	Segment code:	012	Checked by :
IR-1: Input	Segment between	TUBAN and	BABAT
	Specific grade: No [NO indicates segment, YES spec grade(only 2/2UD)]		
GENERAL DATA,			
ROAD GEOMETRY	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	4/2UD	Length (km) : 2.100
ose: Operation	Time period:	PAGI	Case number: EKSISTING

ZONTAL ALIGNMENT



Horizontal curvature (radians/km):	NA	Roadside development	Side A	Side B	Mean
Sight distance > 300 m (%) :	NA	Default: 0%	0 %	0 %	0 %
Sight distance class (default= B):					

TICAL ALIGNMENT

Rise+fall :	NA m/km	Only for specific grade analysis	
Alignment type:	FLAT (FLAT = default)	Grade length (km) :	
		Grade slope (%) :	
		Climbing lane (Y/N) :	

SS SECTION

Undivided road

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	7.00	7.00	14.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

AD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
urface type [Flexible/Concrete/Other]	NotAvail			NotAvail
rop from carriageway to shoulder (cm)	0			0
sability [Traffic/Parking/Emergency]	NoInput			NoInput
default shoulder usability)	(EMERGENCY)	( )	( )	(EMERGENCY)

FECTIVE WIDTHS

-- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
IR-2: Input	Segment code:	012	Checked by:
FIC FLOW, SIDE FRICTION	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	4/2UD	Length (km) : 2.100
ose: Operation	Time period :	PAGI	Case number: EKSISTING

FFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
CLASSIFIED-HOURLY (Class/AAdt/UNclass)			50 - 50 %

Traffic	LV	MHV	LB	LT	MC	Total
mposition(%)	(%)	(%)	(%)	(%)	(%)	(%)
User values	60.14	21.78	6.628	2.832	8.608	100.0
ormal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

affic flow data for whole segment analysis:

w|Di- rec	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	MotorCycle	Total flow Q		
1	pce,1= 1.00	pce,1= 1.43	pce,1= 1.59	pce,1= 2.22	pce,1= 0.63			
2	pce,2= 1.00	pce,2= 1.43	pce,2= 1.59	pce,2= 2.22	pce,2= 0.63			
	veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	Split	veh/h	pcu/h
(1)	(2) | (3)	(4) | (5)	(6) | (7)	(8) | (9)	(10) | (11)	(%) (12)	(13)	(14)
Dir1	1093 | 1093	396 | 568	120 | 191	52 | 116	156 | 99	49.97	1817	2067
Dir2	1094 | 1094	396 | 568	121 | 192	51 | 113	157 | 100	50.02	1819	2067
1+2	2187 | 2187	792 | 1136	241 | 383	103 | 229	313 | 199		3636	4134
Note. If specific grade then dir 1 = uphill, dir 2= downhill				Directional split, SP= Q1/(Q1+Q2)=			49.98	50.08
				Pcu-factor, Fpcu =				1.136

E FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

Determination of frequency of events

culation of weighted quency of events per r and 200 m of the dled road segment.

quencies are for h sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class

: -- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
a IR-3: Analysis	Segment code:	012	Checked by:
SPEED, CAPACITY	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	4/2UD	Length (km) : 2.100
pose: Operation	Time period :	PAGI	Case number: EKSISTING

SE FLOW SPEEDS.
tion to enter other free flow speeds: No

- | Base free-flow speed	Carriage-	FVo+FWv	Adjustment factors		Actual free-flow speeds, km/h				
o-| FVo (km/h)	way width	Light	Side	Land use	FFVlv = (FVo+FVw)*FFVsf*FFVrc				
on| for different vehicles	adjust-	vehicle	friction	Road func	Light	Other vehicle types			
Table B-1:1 or B-1:2	ment, FVw	Tab B2:1	(2)+(3)	FFVsf	FFVrc	vehicle				
LV | MHV | LB | LT | MC	(km/h)	(km/h)	Tab B3:1	Tab B4:1	(4*5*6)	MHV	LB	LT	MC
(2)	(3)	(4)	(5)	(6)	(7)				
2 |74.0|63.0|78.0|60.0|60.0	0.0	74.0	0.970	1.000	71.78	61.11	75.66	58.20	58.20

mments: User FFV, dir1: None!
dir2: None!

PACITY

rec- | Base Capacity	Adjustment factors for capacity				Actual capacity, C
ion	Co	Carriageway width	Directional split	Side friction	C= Co*FCw*FCsp*FCsf pcu/h
	Table C-1:1 pcu/h	FCw Table C-2:1	FCsp Table C-3:1	FCsf Table C-4:1	
	(11)	(12)	(13)	(14)	(11)*(12)*(13)*(14) (15)
1+2	6800	1.000	1.000	0.950	6459

TUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

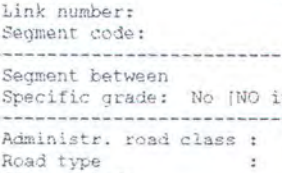
- | Traffic	Degree of	Actual	Road	Travel	ACTUAL SPEEDS				Di-	Degree of
c-| flow, Q	saturation	speed, Vlv	segment	time, TT	for other vehicle types				rec-	bunching
on| Form IR-2	DS=Q/C	Fig D2:1/:2	length, L	(24/23)	km/h				tion	DB
pcu/h	(21)/(15)	km/h	km	sec	MHV	LB	LT	MC		Fig D3:1
(21)	(22)	(23)	(24)	(25)						(31)
2 | 4134	0.640	58.31	2.100	129.633	49.64	61.47	47.28	47.28		

ace for user remark:

gram version 1.10F | Date of run: 060822/16:56

A J I	Province	JAWA TIMUR	Date : 12 JULI 2006
	Link number:	01	Handled by : BAMBANG
IERURBAN ROADS	Segment code:	013	Checked by :
rm IR-1: Input	Segment between	BABAT and	LAMONGAN
	Specific grade: No [NO indicates segment, YES spec grade(only 2/2UD)]		
GENERAL DATA, ROAD GEOMETRY	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	8/2D	Length (km) : 3.200
rpose: Operation	Time period:	PAGI	Case number: EKSISTING

RIZONTAL ALIGNMENT



Horizontal curvature (radians/km):	NA	Roadside development	Side A	Side B	Mean
Sight distance > 300 m (%) :	NA	Default: 0%	0 %	0 %	0 %
Sight distance class (default= B):					

RTICAL ALIGNMENT

Rise-fall :	NA m/km	Only for specific grade analysis	
Alignment type:	FLAT (FLAT = default)	Grade length (km) :	
		Grade slope (%) :	
		Climbing lane (Y/N) :	

OSS SECTION

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	12.00	12.00	24.00	12.00
Unobstructed shoulder width, Ws (m)	1.50	1.50		

OAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail	NotAvail	NotAvail	NotAvail
Drop from carriageway to shoulder (cm)	0	0	0	0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	NoInput (EMERGENCY)	NoInput (EMERGENCY)	NoInput (EMERGENCY)

JI -- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
rm IR-2: Input	Segment code:	013	Checked by:
AFFIC FLOW, SIDE FRICTION	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	8/2D	Length (km) : 3.200
rpose: Operation	Time period :	PAGI	Case number: EKSISTING

RAFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT	K-factor	Dir1 - Dir2
CLASSIFIED-HOURLY	(veh/day)	(default: 0.11)	(default: 50 - 50)
(CLass/AAdt/UNclass)			50 - 50 %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values	59.42	20.35	6.191	2.653	11.37	100.0
normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

raffic flow data for whole segment analysis:

ow | Di- rec- tion	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.30 pce,2= 1.30		Large Bus pce,1= 1.50 pce,2= 1.50		Large Truck pce,1= 2.00 pce,2= 2.00		MotorCycle pce,1= 0.50 pce,2= 0.50		Total flow Split (%)	Q veh/h	Q pcu/h
.1 .2		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h			
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	2687	2687	921	1197	280	420	120	240	514	257	49.99	4522	4801
4	Dir2	2688	2688	920	1196	280	420	120	240	515	258	50.00	4523	4802
5	1+2	5375	5375	1841	2393	560	840	240	480	1029	515		9045	9603
6	Note. If specific grade then							Directional split, SP= Q1/(Q1+Q2)=					49.9%	49.9%
7	dir 1 = uphill, dir 2= downhill							Pcu-factor, Fpcu =						1.061

DE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

Determination of frequency of events

lculation of weighted equency of events per ur and 200 m of the udied road segment.

equencies are for th sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class

UI -- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
rm IR-3: Analysis	Segment code:	013	Checked by:
SPEED, CAPACITY	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	8/2D	Length (km) : 3.200
rpose: Operation	Time period :	PAGI	Case number: EKSISTING

REE FLOW SPEEDS.

ption to enter other free flow speeds: No

i-	Base free-flow speed					Carriage-	FVo+FVw	Adjustment factors		Actual free-flow speeds, km/h			
ec-	FVo (km/h)					way width	Light	Side	Land use	FFVlv = (FVo+FVw)*FFVsf*FFVrc			
ion	for different vehicles					adjust-	vehicle	friction	Road func	Light	Other vehicle types		
	Table B-1:1 or B-1:2					ment, FVw		FFVsf	FFVrc	vehicle			
	LV (2)	MHV	LB	LT	MC	Tab B2:1 (km/h) (3)	(2)+(3) (km/h) (4)	Tab B3:1 (5)	Tab B4:1 (6)	(4*5*6) (7)	MHV	LB	LT	MC
1	83.0	67.0	86.0	64.0	64.0	-3.0	80.0	0.984	1.000	78.72	63.54	81.56	60.69	60.69
2	83.0	67.0	86.0	64.0	64.0	-3.0	80.0	0.984	1.000	78.72	63.54	81.56	60.69	60.69

omments: Table B-1:1 used to get base free flow speed!

User FFV, dir1: None!
dir2: None!

APACITY

irec- tion	Base Capacity	Adjustment factors for capacity			Actual capacity, C
	Co Table C-1:1 pcu/h (11)	Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	7600	0.910	1.000	0.992	6861
2	7600	0.910	1.000	0.992	6861

CTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD roads

i-	Traffic	Degree of	Actual	Road	Travel	ACTUAL SPEEDS for other vehicle types km/h				Di-	Degree of
ec-	flow, Q	saturation	speed, Vlv	segment	time, TT					rec-	bunching
ion	Form IR-2	DS=Q/C	Fig D2:1/:2	length, L	(24/23)					tion	DB
	pcu/h (21)	(21)/(15) (22)	km/h (23)	km (24)	sec (25)	MHV	LB	LT	MC		Fig D3:1 (31)
1	4801	0.700	61.28	3.200	187.982	49.46	63.49	47.25	47.25		
2	4802	0.700	61.27	3.200	188.005	49.46	63.48	47.24	47.24		

pace for user remark:

ogram version 1.10F | Date of run: 060822/15:21 |

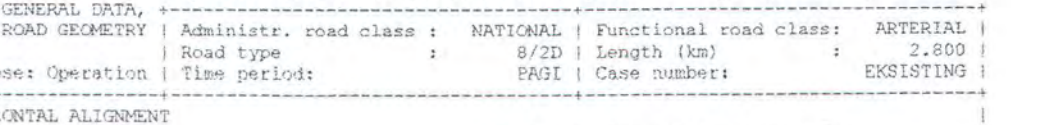
J I	Province	JAWA TIMUR	Date : 12 JULI 2006
	Link number:	01	Handled by : BAMBANG
TERURBAN ROADS	Segment code:	014	Checked by :

m IR-1: Input — Segment between LAMONGAN and GRESIK
Specific grade: No [NO indicates segment, YES spec grade(only 2/2UD)]

GENERAL DATA, ROAD GEOMETRY

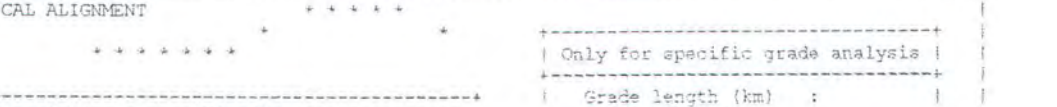
Administr. road class :	NATIONAL	Functional road class:	ARTERIAL
Road type :	8/2D	Length (km) :	2.800
rpose: Operation — Time period:	PAGI	Case number:	EKSISTING

RIZONTAL ALIGNMENT



Horizontal curvature (radians/km):	NA	Roadside development	Side A	Side B	Mean
Sight distance > 300 m (%) :	NA	Default: 0%	0 %	0 %	0 %
Sight distance class (default= B):					

RTICAL ALIGNMENT



Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

OSS SECTION

Divided road

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	12.00	12.00	24.00	12.00
Unobstructed shoulder width, Ws (m)	1.50	1.50		

OAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail	NotAvail	NotAvail	NotAvail
Drop from carriageway to shoulder (cm)	0	0	0	0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	NoInput (EMERGENCY)	NoInput (EMERGENCY)	NoInput (EMERGENCY)

FFECTIVE WIDTHS

I -- INTERURBAN ROADS	Province:	JAWA TIMUR	Date: 12 JULI 2006
	Link number:	01	Handled by: BAMBANG
m IR-2: Input	Segment code:	014	Checked by:
FFIC FLOW, SIDE FRICTION	Administr. road class :	NATIONAL	Functional road class: ARTERIAL
	Road type :	8/2D	Length (km) : 2.800
pose: Operation	Time period :	PAGI	Case number: EKSISTING

AFFIC DATA:

Type of traffic data	ANNUAL AVERAGE DAILY TRAFFIC		DIRECTIONAL SPLIT
	AADT (veh/day)	K-factor (default: 0.11)	Dir1 - Dir2 (default: 50 - 50)
CLASSIFIED-HOURLY (Class/AAdt/UNclass)			50 - 50 %

Traffic Composition(%)	LV (%)	MHV (%)	LB (%)	LT (%)	MC (%)	Total (%)
User values	59.66	20.47	6.231	2.931	10.69	100.0
normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)

LV = Light Vehicle
MHV = Medium Heavy Vehicle
LB = Large Bus
LT = Large Truck
MC = MotorCycle

raffic flow data for whole segment analysis:

ow|Di- |Light Vehicle|Med Heavy Veh| Large Bus	Large Truck	MotorCycle	Total flow Q		
rec|						
.1|tion| pce,1= 1.00	pce,1= 1.30	pce,1= 1.50	pce,1= 2.00	pce,1= 0.50			
.2| pce,2= 1.00	pce,2= 1.30	pce,2= 1.50	pce,2= 2.00	pce,2= 0.50			
| veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	veh/h|pcu/h	Split	veh/h|pcu/h|
2 |(1) | (2) | (3)	(4) | (5)	(6) | (7)	(8) | (9)	(10) | (11)	(%) (12)	(13)| (14)|
3 |Dir1| 2757 | 2757	947 | 1231	288 | 432	136 | 272	494 | 247	50.00	4622| 4939|
4 |Dir2| 2758 | 2758	946 | 1230	288 | 432	135 | 270	495 | 248	50.00	4622| 4938|
5 |1+2 | 5515 | 5515	1893 | 2461	576 | 864	271 | 542	989 | 495		9244| 9877|
6 | Note. If specific grade then			|Directional split, SP= Q1/(Q1+Q2)=			50.0%|50.0%|
7 | dir 1 = uphill, dir 2= downhill			|Pcu-factor, Fpcu =			| |1.068|

E FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

Determination of frequency of events

lculation of weighted equency of events per ur and 200 m of the died road segment.	Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
equencies are for th sides of the road.	Pedestrians	PED	0.6	NA / h,200m	NA
	Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
	Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
	Slow-moving vehicles	SMV	0.4	NA / h	NA
				Total:	NA

Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class

I -- INTERURBAN ROADS	Province: JAWA TIMUR	Date:	12 JULI 2006
	Link number: 01	Handled by:	BAMBANG
m IR-3: Analysis	Segment code: 014	Checked by:	
SPEED, CAPACITY	Administr. road class : NATIONAL	Functional road class:	ARTERIAL
	Road type : 6/2D	Length (km) :	2.800
pose: Operation	Time period : PAGI	Case number:	EKSISTING

EE FLOW SPEEDS.
tion to enter other free flow speeds: No

- / c-/ on	Base free-flow speed for different vehicles Table B-1:1 or B-1:2					Carriage-way width, FVw (km/h) Table B2:1 (km/h)	FVo+FVw vehicle (2)+(3) (km/h)	Adjustment factors: Side friction FFVsf Tab B3:1	Land use Road func FFVrc Tab B4:1	Actual free-flow speeds, km/h FFVlv = (FVo+FVw)*FFVsf*FFVrc Light vehicle (4*5*6)	Other vehicle types			
	LV (2)	MHV	LB	LT	MC	(3)	(4)	(5)	(6)	(7)	MHV	LB	LT	MC
	83.0	67.0	86.0	64.0	64.0	-3.0	80.0	0.984	1.000	78.72	63.54	81.56	60.69	60.69
	83.0	67.0	86.0	64.0	64.0	-3.0	80.0	0.984	1.000	78.72	63.54	81.56	60.69	60.69

mments: Table B-1:1 used to get base free flow speed! | User FFV, dir1: None! dir2: None!

PACITY

rec-ion	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1	7600	0.910	1.000	0.992	6861
2	7600	0.910	1.000	0.992	6861

TUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD roads

- / c-/ on	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Di-rec-tion	Degree of bunching DB Fig D3:1 (31)
	4939	0.720	60.48	2.800	166.641	48.82	62.67	46.64	46.64		
	4938	0.720	60.49	2.800	166.627	48.83	62.68	46.64	46.64		

ace for user remark:

gram version 1.10F | Date of run: 060822/15:26

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	------- SIDE A ------		------- SIDE B ------	
	Outer	Inner	Inner	Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h	Max gross weight: 8.000 tonnes
Other limitations :	
More remarks :	

Program version 1.10F Date of run: 060822/17:06

(normal values)| (57.0)| (23.0)| (7.0)| (4.0)| (9.0)|(100.0)|

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h (2)	Light Vehicle pcu/h (3)	Med Heavy Veh pce,1= 1.46 pce,2= 1.46 veh/h (4)	Med Heavy Veh pcu/h (5)	Large Bus pce,1= 1.50 pce,2= 1.50 veh/h (6)	Large Bus pcu/h (7)	Large Truck pce,1= 2.16 pce,2= 2.16 veh/h (8)	Large Truck pcu/h (9)	MotorCycle pce,1= 0.66 pce,2= 0.66 veh/h (10)	MotorCycle pcu/h (11)	Split (%) (12)	Total flow veh/h (13)	Total flow pcu/h
1.1	tion													
1.2														
2	(1)													
3	Dir1	596	596	234	342	71	106	31	67	164	109	50.00	1096	1
4	Dir2	596	596	234	342	71	106	31	67	164	109	50.00	1096	1
5	1+2	1192	1192	468	684	142	212	62	134	328	218		2192	2
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					50.08	50.
7								Pcu-factor, Fpcu =						1.

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequ of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/17:06 |

Comments:	User FFV, dir1: None! dir2: None!

CAPACITY

Direction	Base Capacity: Co, Table C-1:1, pcu/h, (11)	Adjustment factors for capacity: Carriageway width, FCw, Table C-2:1, (12)	Adjustment factors for capacity: Directional split, FCsp, Table C-3:1, (13)	Adjustment factors for capacity: Side friction, FCsf, Table C-4:1, (14)	Actual capacity, C= Co*FCw*FCsp*FCsf pcu, (11)*(12)*(13)*(14), (15)
1+2	6800	0.910	1.000	0.959	5879

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD ro

Direction	Traffic flow, Q, pcu/h, Form IR-2, (21), (21)	Degree of saturation, DS=Q/C, (21)/(15), (22)	Actual speed, Vlv, km/h, Fig D2:1/:2, (23)	Road segment length, L, km, (24)	Travel time, TT, sec, (24/23), (25)	ACTUAL SPEEDS for other vehicle types, km/h: MHV	LB	LT	MC	Direction	Degree bunchin DB, Fig D3:, (31)
1+2	2440	0.415	61.81	2.000	116.468	52.63	65.16	50.12	50.12		

Space for user remark:

Program version 1.10F	Date of run: 060822/17:06

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	

Max gross weight: 8.000 tonnes

Program version 1.10F | Date of run: 060822/15:37

| (normal values) | (57.0) | (23.0) | (7.0) | (4.0) | (9.0) | (100.0) |

MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle: pce,1= 1.00 / pce,2= 1.00		Med Heavy Veh: pce,1= 1.46 / pce,2= 1.46		Large Bus: pce,1= 1.50 / pce,2= 1.50		Large Truck: pce,1= 2.16 / pce,2= 2.16		MotorCycle: pce,1= 0.66 / pce,2= 0.66		Total flow		Q
		veh/h (2)	pcu/h (3)	veh/h (4)	pcu/h (5)	veh/h (6)	pcu/h (7)	veh/h (8)	pcu/h (9)	veh/h (10)	pcu/h (11)	Split (%) (12)	veh/h (13)	pcu/h (14
1	(1)													
2														
3	Dir1	657	657	229	335	78	117	35	76	98	65	49.97	1097	125
4	Dir2	657	657	229	335	79	118	34	73	99	66	50.02	1098	124
5	1+2	1314	1314	458	670	157	235	69	149	197	131		2195	249
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					49.9%	50.0
7								Pcu-factor, Fpcu =						1.13

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequen of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 060822/15:37

Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD r

Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Dir- rec- tion	Degree bunchi Fig D3 (31
1+2	2499	0.425	61.59	1.500	87.6756	52.43	64.91	49.93	49.93		

Space for user remark:

Program version 1.10F | Date of run: 060822/15:37

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type (Flexible(asphalt)/Concrete/Other)	NotAvail	NotAvail
Surface condition (Good/Fair/Bad)	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type (Flexible/Concrete/Other)	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability (Traffic/Parking/Emergency) (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	
Max gross weight:	8.000 tonnes

Program version 1.10F | Date of run: 060822/15:42

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle: pce,1= 1.00 / pce,2= 1.00		Med Heavy Veh: pce,1= 1.35 / pce,2= 1.35		Large Bus: pce,1= 1.35 / pce,2= 1.35		Large Truck: pce,1= 1.90 / pce,2= 1.90		MotorCycle: pce,1= 0.58 / pce,2= 0.58		Total flow		Q
1.1												Split	veh/h	pcu
1.2		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	(%)		
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(1
3	Dir1	376	376	131	177	40	54	17	32	78	45	49.96	642	6
4	Dir2	377	377	131	177	40	54	17	32	78	45	50.03	643	6
5	1+2	753	753	262	354	80	108	34	64	156	90		1285	13
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=				49.98	49.	
7								Pcu-factor, Fpcu =						1.0

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/15:42

Comments: | User FFV, dir1: None! dir2: None!

CAPACITY

Direction	Base Capacity: Co, Table C-1:1, pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw, Table C-2:1 (12)	Directional split FCsp, Table C-3:1 (13)	Side friction FCsf, Table C-4:1 (14)	Actual capacity, C= Co*FCw*FCsp*FCsf pcu, (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5877

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD re

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree bunchin DB Fig D3: (31)
1+2	1369	0.233	65.50	1.500	82.4398	55.76	69.04	53.11	53.11		

Space for user remark:

Program version 1.10F | Date of run: 060822/15:42

VERTICAL ALIGNMENT

Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A WsA WcA WcB WsB side B

1.00 6.00 6.00 1.00

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h

Max gross weight: 8.000 tonnes

Other limitations :

More remarks :

Program version 1.10F Date of run: 060822/15:47

(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)	PC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.45 pce,2= 1.45		Large Bus pce,1= 1.47 pce,2= 1.47		Large Truck pce,1= 2.12 pce,2= 2.12		MotorCycle pce,1= 0.65 pce,2= 0.65		Total flow Split		Q
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	(%)	veh/h	pcu
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(1
3	Dir1	613	613	223	323	68	100	29	61	98	63	49.97	1031	11
4	Dir2	614	614	223	323	68	100	29	61	98	63	50.02	1032	11
5	1+2	1227	1227	446	646	136	200	58	122	196	126		2063	23
6	Note. If specific grade then							Directional split, SP= Q1/(Q1+Q2)=					49.9%	49.
7	dir 1 = uphill, dir 2= downhill							Pcu-factor, Fpcu =						1.1

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

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Comments:

User FFV, dir1: None!
dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C= Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD ro

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree bunchin DB Fig D3: (31)
1+2	2321	0.395	62.26	1.800	104.065	53.01	65.63	50.48	50.48		

Space for user remark:

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VERTICAL ALIGNMENT

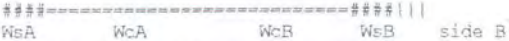
Rise+fall : NA m/km
Alignment type: FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :
Grade slope (%) :
Climbing lane (Y/N) :

CROSS SECTION

Undivided road



side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type (Flexible(asphalt)/Concrete/Other)	NotAvail	NotAvail
Surface condition (Good/Fair/Bad)	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type (Flexible/Concrete/Other)	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability (Traffic/Parking/Emergency) (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h
Other limitations :
More remarks :
Max gross weight: 8.000 tonnes

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(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)	PC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h (2)	Light Vehicle pcu/h (3)	Med Heavy Veh pce,1= 1.46 pce,2= 1.46 veh/h (4)	Med Heavy Veh pcu/h (5)	Large Bus pce,1= 1.61 pce,2= 1.61 veh/h (6)	Large Bus pcu/h (7)	Large Truck pce,1= 2.27 pce,2= 2.27 veh/h (8)	Large Truck pcu/h (9)	MotorCycle pce,1= 0.66 pce,2= 0.66 veh/h (10)	MotorCycle pcu/h (11)	Total flow Split (8) (12)	Total flow veh/h (13)	Total flow pcu/h (1
1.1														
1.2														
2	(1)													
3	Dir1	1060	1060	394	576	120	193	52	118	161	106	49.98	1787	20
4	Dir2	1060	1060	393	574	121	194	52	118	162	107	50.01	1788	20
5	1+2	2120	2120	787	1150	241	387	104	236	323	213		3575	41
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					49.9%	50.
7								Pcu-factor, Fpcu =						(1.1

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 060822/15:53

Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles

Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Only 2/2UD roads: Direction	Degree of bunching DB Fig D3: (31)
1+2	4106	0.699	54.08	1.100	73.2156	46.04	57.01	43.85	43.85		

Space for user remark:

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VERTICAL ALIGNMENT

Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A WsA 1.00 | WcA 5.50 | WcB 5.50 | WsB 1.00 side B

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	5.50	5.50	11.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	11.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	
Max gross weight:	8.000 tonnes

Program version 1.10F | Date of run: 060822/15:58

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.30 pce,2= 1.30		Large Bus pce,1= 1.50 pce,2= 1.50		Large Truck pce,1= 2.00 pce,2= 2.00		MotorCycle pce,1= 0.50 pce,2= 0.50		Total flow Q		
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (8)	veh/h	pcu/h
1.1	rec-													
1.2														
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
3	Dir1	1159	1159	422	549	128	192	76	152	296	148	49.97	2081	2261
4	Dir2	1159	1159	422	549	129	194	76	152	297	149	50.02	2083	2264
5	1+2	2318	2318	844	1098	257	386	152	304	593	297		4164	4525
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					49.9%	49.1
7								Pcu-factor, Fpcu =						1.09

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/15:58

Comments:

User FFV, dir1: None!
dir2: None!

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C C= Co*FCw*FCsp*FCsf pcu/h (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD ro

Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Di- rec- tion	Degree bunchin DB Fig D3: (31)
1+2	4403	0.749	52.30	1.200	82.5877	44.53	55.13	42.41	42.41		

Space for user remark:

Program version 1.10F | Date of run: 060822/15:58

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis	
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A		SIDE B	
	Outer	Inner	Inner	Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h	Max gross weight: 8.000 tonnes
Other limitations :	
More remarks :	

Program version 1.10F | Date of run: 060822/16:01

|(normal values)|(57.0)|(23.0)|(7.0)|(4.0)|(9.0)|(100.0)| PC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.30 pce,2= 1.30		Large Bus pce,1= 1.50 pce,2= 1.50		Large Truck pce,1= 2.00 pce,2= 2.00		MotorCycle pce,1= 0.50 pce,2= 0.50		Total flow Split	Q veh/h	Q pcu
1.1 / 1.2		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h			
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(1
3	Dir1	1198	1198	411	534	125	188	59	118	210	105	50.01	2003	21
4	Dir2	1198	1198	410	533	125	188	58	116	211	106	49.98	2002	21
5	1+2	2396	2396	921	1067	250	376	117	234	421	211		4005	42
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					50.0%	50.
7								Pcu-factor, Fpcu =						1.0

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/16:01

Comments: | User FFV, dir1: None!
dir2:

CAPACITY

Direction	Base Capacity: Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C= Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD ro

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree rec- bunchin DB Fig D3: (31)
1+2	4284	0.729	53.04	1.200	81.4449	45.15	55.90	43.00	43.00		

Space for user remark:

Program version 1.10F | Date of run: 060822/16:01

VERTICAL ALIGNMENT

Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h	Max gross weight: 8.000 tonnes
Other limitations :	
More remarks :	

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| (normal values) | (57.0) | (23.0) | (7.0) | (4.0) | (9.0) | (100.0) |

MC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.46 pce,2= 1.46		Large Bus pce,1= 1.49 pce,2= 1.49		Large Truck pce,1= 2.15 pce,2= 2.15		MotorCycle pce,1= 0.66 pce,2= 0.66		Total flow Split	veh/h	pcu
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h			
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(1
3	Dir1	628	628	234	342	71	106	31	67	118	78	50.00	1082	12
4	Dir2	628	628	234	342	71	106	30	64	119	79	50.00	1082	12
5	1+2	1256	1256	468	684	142	212	61	131	237	157		2164	24
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					50.0%	50.
7								Pcu-factor, Fpcu =						1.1

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/16:07

Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5879

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD r

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree bunchi DB Fig D3 (31)
1+2	2440	0.415	61.81	2.100	122.291	52.63	65.16	50.12	50.12		

Space for user remark:

Program version 1.10F | Date of run: 060822/16:07

VERTICAL ALIGNMENT

Rise+fall	:	NA m/km
Alignment type:		FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km)	:	
Grade slope (%)	:	
Climbing lane (Y/N)	:	

CROSS SECTION

Undivided road

side A | WsA | WcA | WcB | WsB | side B

WsA	WcA	WcB	WsB
1.00	6.00	6.00	1.00

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	------- SIDE A ------		------- SIDE B ------	
	Outer	Inner	Inner	Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit	:	80 km/h	Max gross weight: 8.000 tonnes
Other limitations	:		
More remarks	:		

Program version 1.10F | Date of run: 060822/16:07

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00 veh/h (2)	Light Vehicle pcu/h (3)	Med Heavy Veh pce,1= 1.59 pce,2= 1.59 veh/h (4)	Med Heavy Veh pcu/h (5)	Large Bus pce,1= 1.68 pce,2= 1.68 veh/h (6)	Large Bus pcu/h (7)	Large Truck pce,1= 2.46 pce,2= 2.46 veh/h (8)	Large Truck pcu/h (9)	MotorCycle pce,1= 0.79 pce,2= 0.79 veh/h (10)	MotorCycle pcu/h (11)	Total flow Split (%) (12)	Total flow veh/h (13)	Total flow pcu
1.1	tion													
1.2														
2	(1)													
3	Dir1	919	919	360	571	109	183	36	89	144	113	49.98	1568	18
4	Dir2	920	920	359	569	110	185	35	86	145	114	50.01	1569	18
5	1+2	1839	1839	719	1140	219	368	71	175	289	227		3137	37
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=				49.9%		50.
7								Pcu-factor, Fpcu =						1.1

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F | Date of run: 060822/16:07 |

Comments:	User FFV, dir1: None! dir2: None!

CAPACITY

Direc-tion	Base Capacity	Adjustment factors for capacity			Actual capacity, C
	Co Table C-1:1 pcu/h (11)	Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	C= Co*FCw*FCsp*FCsf pc (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles

Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed,Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h				Di-rec-tion	Degree bunchi DB Fig D3 (31
						MHV	LB	LT	MC		
1+2	3749	0.638	56.02	1.800	115.670	47.69	59.04	45.42	45.42		

Space for user remark:

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VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	

Max gross weight: 8.000 tonnes

Program version 1.10F	Date of run: 060822/16:17

Traffic flow data for whole segment analysis:

Row	Di-rec-tion	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.55 pce,2= 1.55		Large Bus pce,1= 1.63 pce,2= 1.63		Large Truck pce,1= 2.38 pce,2= 2.38		MotorCycle pce,1= 0.75 pce,2= 0.75		Total flow Split		
1.1 / 1.2		veh/h (2)	pcu/h (3)	veh/h (4)	pcu/h (5)	veh/h (6)	pcu/h (7)	veh/h (8)	pcu/h (9)	veh/h (10)	pcu/h (11)	(%) (12)	veh/h (13)	pcu
3	Dir1	861	861	331	514	100	163	43	103	110	83	49.96	1445	1
4	Dir2	862	862	330	513	101	165	43	103	111	84	50.03	1447	1
5	1+2	1723	1723	661	1027	201	328	86	206	221	167		2892	3
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					49.9%	49.
7								Pcu-factor, Fpcu =						1.

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high
For current case indicate side friction class:		L (L is default)

Program version 1.10F | Date of run: 060822/16:17

Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD r

Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direction	Degree bunchi DB Fig D3 (31
1+2	3451	0.587	57.49	1.700	106.435	48.95	60.60	46.62	46.62		

Space for user remark:

Program version 1.10F | Date of run: 060822/16:17

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A NsA WcA WcB NsB side B

1.00 5.50 5.50 1.00

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	5.50	5.50	11.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	------- SIDE A ------		------- SIDE B ------	
	Outer	Inner	Inner	Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	11.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h	Max gross weight: 8.000 tonnes
Other limitations :	
More remarks :	

Program version 1.10F Date of run: 060822/17:13

Traffic flow data for whole segment analysis:

Row	Di-rec	Light Vehicle pce,1= 1.00 pce,2= 1.00		Med Heavy Veh pce,1= 1.34 pce,2= 1.34		Large Bus pce,1= 1.34 pce,2= 1.34		Large Truck pce,1= 1.88 pce,2= 1.88		MotorCycle pce,1= 0.57 pce,2= 0.57		Total flow Split (%)		Q veh/h	Q pcu
1.1	tion														
1.2		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	
3	Dir1	355	355	122	163	37	50	17	32	64	36	50.04		595	
4	Dir2	355	355	121	162	37	50	16	30	65	37	49.95		594	
5	1+2	710	710	243	325	74	100	33	62	129	73			1189	1
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=				50.0%		50	
7								Pcu-factor, Fpcu =						1.	

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequ of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high
For current case indicate side friction class:		L (L is default)

Program version 1.10F | Date of run: 060822/17:13

Comments: | User FFV, dir1: None! dir2: None!

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pc (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5877

ACTUAL SPEED and TRAVEL TIME for light vehicles

Only 2/2UD r

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree bunchi DB Fig D3 (31
1+2	1270	0.216	65.80	1.200	65.6511	56.02	69.35	53.35	53.35		

Space for user remark:

Program version 1.10F | Date of run: 060822/17:13

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h	Max gross weight: 8.000 tonnes
Other limitations :	
More remarks :	

Program version 1.10F | Date of run: 060822/17:17

(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)	PC = MotorCycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle pce,1= 1.00 pce,2= 1.00	Med Heavy Veh pce,1= 1.46 pce,2= 1.46	Large Bus pce,1= 1.50 pce,2= 1.50	Large Truck pce,1= 2.16 pce,2= 2.16	MotorCycle pce,1= 0.66 pce,2= 0.66	Total flow		Q
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (%)	veh/h	pc
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(
3	Dir1	656	656	229	335	78	117	35	76	100	66	49.97	1098	1
4	Dir2	656	656	229	335	79	118	34	73	101	67	50.02	1099	1
5	1+2	1312	1312	458	670	157	235	69	149	201	133		2197	2
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=				49.9%		50
7								Pcu-factor, Fpcu =						1.

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequ
of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 060822/17:17

Comments: | User FFV, dir1: None! dir2: None!

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD r

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree (bunchi DB Fig D3 (31
1+2	2499	0.425	61.59	1.800	105.210	52.43	64.91	49.93	49.93		

Space for user remark:

Program version 1.10F | Date of run: 060822/17:17

VERTICAL ALIGNMENT

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)

Only for specific grade analysis

Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A	WsA	WcA	WcB	WsB	side B
	1.00	6.00	6.00	1.00	

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	
Max gross weight:	0.000 tonnes

Program version 1.10F | Date of run: 060822/17:23

(normal values)	(57.0)	(23.0)	(7.0)	(4.0)	(9.0)	(100.0)	PC = Motorcycle

Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle		Med Heavy Veh		Large Bus		Large Truck		MotorCycle		Total flow		
1.1		pce,1= 1.00		pce,1= 1.54		pce,1= 1.61		pce,1= 2.35		pce,1= 0.74				
1.2		pce,2= 1.00		pce,2= 1.54		pce,2= 1.61		pce,2= 2.35		pce,2= 0.74				
		veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	veh/h	pcu/h	Split (%)	veh/h	pc
2	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
3	Dir1	789	789	321	494	95	153	42	99	139	103	50.01	1386	1
4	Dir2	789	789	321	494	95	153	41	96	139	103	49.98	1365	1
5	1+2	1578	1578	642	988	190	306	83	195	278	206		2771	3
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=					50.0%	50
7								Pcu-factor, Fpcu =						1.

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequency of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

Program version 1.10F	Date of run: 060822/17:23

Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direc-tion	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pc (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD r

Di-rec-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Di-rec-tion	Degree bunchi DB Fig D3 (31
1+2	3273	0.557	58.33	1.600	98.7469	49.66	61.48	47.29	47.29		

Space for user remark:

Program version 1.10F | Date of run: 060822/17:23

VERTICAL ALIGNMENT

Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A WsA WcA WcB WsB side B

1.00 6.00 6.00 1.00

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit : 80 km/h

Other limitations :

More remarks :

Max gross weight: 8.000 tonnes

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Traffic flow data for whole segment analysis:

Row	Direction	Light Vehicle	Med Heavy Veh	Large Bus	Large Truck	MotorCycle	Total flow	Q
1.1		pce,1= 1.00	pce,1= 1.60	pce,1= 1.69	pce,1= 2.49	pce,1= 0.80		
1.2		pce,2= 1.00	pce,2= 1.60	pce,2= 1.69	pce,2= 2.49	pce,2= 0.80		
		veh/h | pcu/h	veh/h | pcu/h	veh/h | pcu/h	veh/h | pcu/h	veh/h | pcu/h	Split	veh/h | pc
2	(1)	(2) (3)	(4) (5)	(6) (7)	(8) (9)	(10) (11)	(%) (12)	(13)	
3	Dir1	958 958	342 546	113 191	49 122	147 117	49.98	1609	1
4	Dir2	959 959	342 546	113 191	48 120	148 118	50.01	1610	1
5	1+2	1917 1917	684 1092	226 382	97 242	295 235		3219	3
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill				Directional split, SP= Q1/(Q1+Q2)=			49.9%	50
7					Pcu-factor, Fpcu =				1.

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted frequ of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high

For current case indicate side friction class: L (L is default)

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Comments: | User FFV, dir1: None! dir2:

CAPACITY

Direction	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pc (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD r

Direction	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed,Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time,TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direction	Degree bunchi DB Fig D3 (31
1+2	3868	0.658	55.39	1.400	90.9758	47.16	58.39	44.91	44.91		

Space for user remark:

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VERTICAL ALIGNMENT

Only for specific grade analysis

Rise+fall :	NA m/km
Alignment type:	FLAT (FLAT = default)
Grade length (km) :	
Grade slope (%) :	
Climbing lane (Y/N) :	

CROSS SECTION

Undivided road

side A WsA 1.00 | WcA 6.00 | WcB 6.00 | WsB 1.00 side B

UNADJUSTED WIDTHS	Side A	Side B	Total	Mean
Average carriageway width, Wc (m)	6.00	6.00	12.00	
Unobstructed shoulder width, Ws (m)	1.00	1.00	2.00	1.00

ROAD SURFACE CONDITIONS

CARRIAGEWAY SURFACE CONDITIONS	Side A	Side B
Type [Flexible(asphalt)/Concrete/Other]	NotAvail	NotAvail
Surface condition [Good/Fair/Bad]	FAIR	FAIR

SHOULDER SURFACE CONDITIONS	SIDE A Outer	SIDE A Inner	SIDE B Inner	SIDE B Outer
Surface type [Flexible/Concrete/Other]	NotAvail			NotAvail
Drop from carriageway to shoulder (cm)	0			0
Usability [Traffic/Parking/Emergency] (default shoulder usability)	NoInput (EMERGENCY)	( )	( )	NoInput (EMERGENCY)

EFFECTIVE WIDTHS

Undivided road	Widths (m)
Shoulder, total	2.00
Shoulder, mean	1.00
Carriageway	12.00

Divided road	Widths (m) Side A	Side B
Shoulder, total		
Shoulder, mean		
Carriageway		

TRAFFIC CONTROL CONDITIONS

Speed limit :	80 km/h
Other limitations :	
More remarks :	
Max gross weight:	8.000 tonnes

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| (normal values) | (57.0) | (23.0) | (7.0) | (4.0) | (9.0) | (100.0) |

MC = MotorCycle

Traffic flow data for whole segment analysis:

Row (1.1)	Direction (1.2)	Light Vehicle: pce,1= 1.00, pce,2= 1.00		Med Heavy Veh: pce,1= 1.58, pce,2= 1.58		Large Bus: pce,1= 1.69, pce,2= 1.69		Large Truck: pce,1= 2.47, pce,2= 2.47		MotorCycle: pce,1= 0.78, pce,2= 0.78		Total flow		Q
		veh/h (2)	pcu/h (3)	veh/h (4)	pcu/h (5)	veh/h (6)	pcu/h (7)	veh/h (8)	pcu/h (9)	veh/h (10)	pcu/h (11)	Split (%) (12)	veh/h (13)	pcu
3	Dir1	995	995	342	541	113	191	49	121	147	115	49.98	1646	19
4	Dir2	995	995	342	541	113	191	49	121	148	116	50.01	1647	19
5	1+2	1990	1990	684	1082	226	382	98	242	295	231		3293	39
6	Note. If specific grade then dir 1 = uphill, dir 2= downhill							Directional split, SP= Q1/(Q1+Q2)=				49.9%	49.	
7								Pcu-factor, Fpcu =					1.1	

SIDE FRICTION CLASS: If detailed data are available, use first table to determine weighted freque of events and then go to second table. If not, use second table only.

1. Determination of frequency of events

Calculation of weighted frequency of events per hour and 200 m of the studied road segment.

Frequencies are for both sides of the road.

Side friction type of events (20)	Symbol (21)	Weighting factor (22)	Frequency of events (23)	Weighted frequency (24)
Pedestrians	PED	0.6	NA / h,200m	NA
Parking, stopping veh.	PSV	0.8	NA / h,200m	NA
Entry+exit of vehicles	EEV	1.0	NA / h,200m	NA
Slow-moving vehicles	SMV	0.4	NA / h	NA
			Total:	NA

2. Determination of side friction class

Weighted frequency of events (30)	Typical conditions	Side friction class
< 50	Rural, agriculture or undeveloped with very few activities	VL= very low
50 - 149	Rural, some roadside buildings and some activities	L= low
150 - 249	Village, residential activities	M= medium
250 - 349	Village, some market activities	H= high
> 350	Almost urban, market and business activities	VH= very high
For current case indicate side friction class:		L (L is default)

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Comments: | User FFV, dir1: None!
dir2:

CAPACITY

Direc-tion	Base Capacity Co Table C-1:1 pcu/h (11)	Adjustment factors for capacity: Carriageway width FCw Table C-2:1 (12)	Directional split FCsp Table C-3:1 (13)	Side friction FCsf Table C-4:1 (14)	Actual capacity, C = Co*FCw*FCsp*FCsf pcu (11)*(12)*(13)*(14) (15)
1+2	6800	0.910	1.000	0.950	5878

ACTUAL SPEED and TRAVEL TIME for light vehicles — Only 2/2UD ro

Direc-tion	Traffic flow, Q Form IR-2 pcu/h (21)	Degree of saturation DS=Q/C (21)/(15) (22)	Actual speed, Vlv Fig D2:1/:2 km/h (23)	Road segment length, L km (24)	Travel time, TT (24/23) sec (25)	ACTUAL SPEEDS for other vehicle types km/h MHV	LB	LT	MC	Direc-tion	Degree bunchin DB Fig D3: (31)
1+2	3927	0.668	55.08	1.100	71.8928	46.89	58.05	44.66	44.66		

Space for user remark:

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